

BEFORE THE NATIONAL GREEN TRIBUNAL (SZ) CHENNAI
MEMORANDUM OF APPLICATION

(Under Section 18(1) read with Sections 16 (h) of National Green Tribunal Act, 2010)
Appeal No.14 of 2022

M. Yuvadeeban

...Appellant

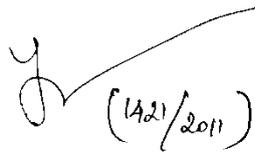
Vs.

Department of Fisheries & Ors

...Respondents

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(14/21/2011)

Through
Yogeshwaran. A
Counsel for Appellant

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Rejoinder filed by the Appellant to the Counter Affidavits of R1,R2, R5 &
Objections filed by the Appellant to the Report of the Joint Committee

I, M. Yuvadeeban s/o Margaret Lawrence, aged about 26 years, residing at B2, Ramaniyam Marvel, Seshadripuram, 1st main road, Velacherry, Chennai 42, do hereby solemnly affirm and sincerely state as follows:

1. I am the Appellant herein and am aware of the facts and circumstances of the case and am competent to affirm to the contents of this affidavit.
2. I have read the counter affidavits filed by the 1st, 2nd and 5th respondents and deny the contents of the same, except to the extent expressly admitted hereunder.
3. Before responding to the counter affidavits, it is necessary to submit that :
 - a. the Appellant herein filed the appeal memorandum along with 16 annexures in File A dated 28.02.2022 marked as Annexure A-1 to Annexure A-16.
 - b. The Appellant filed an additional affidavit dated 02.03.2022 along with the documents as File B. These documents are marked as Annexures A-17 to Annexure A-44.



Annexure A-17	M. Eric Ramanujam & R. Anbarasan, A preliminary report on the ichthyofauna of Yedayanthittu Estuary (Tamil Nadu, India) and rivulets draining into it, Journal of Threatened Taxa (2008)
Annexure A-18	Dipani Sutaria, A rapid assessment of cetacean diversity and distribution along the southeast coast, India- site of the proposed Cheyyur coal power plant and port, Tamil Nadu, Final report submitted to The Marine Mammal Commission, Washington D.C, USA July 2018
Annexure A-19	Gowri V.S , Ramesh R , Nammalwar P, Satheesh N , Rajkumar J, Kakolee Banerjee, Sesha Bamini N, GIS approach in assessing the status of neritic water quality and petroleum hydrocarbons in Bay of Bengal (From Chennai to Nagapattinam, Tamilnadu), India, International Journal Of Geomatics And Geosciences Volume 3, No 1, 2012
Annexure A-20	N. Parthasarathy , K. Ravikumar, R. Ganesan and K. Ramamurthy, Distribution of seagrasses along the coast of Tamil Nadu, Southern India, Aquatic Botany, 40 (1991), Elsevier Science Publishers B.V
Annexure A-21	K. . Ravikumar and R. Ganesan, A New Subspecies of Halophila ovalis (R.Br.) J.D. Hook. (Hydrocharitaceae) from the Eastern Coast of Peninsular India, Aquatic Botany, 36 (1990), Elsevier Science Publishers B.V
Annexure A-22	Vikas Madhav Nagarajan, M. Yuvan, Rohith Srinivasan, Nanditha Ram Satagopan, Aswathi Asokan, Anooja A., Status of important coastal habitats of North Tamil Nadu: Diversity, current threats and approaches for conservation, Regional Studies in Marine Science 49 (2022)



Annexure A-23	Yuvan Aves, The Forgotten Reefs, Sanctuary Asia, Vol. 41 No. 10, October 2021
Annexure A-24	List of birds from Yedaiyanthittu, Ebirds website, as on 02.03.2022
Annexure A-25	BirdLife International, BNHS India, Important Bird and Biodiversity Areas in India, Priority Sites for Conservation, 2 nd Edition Vol. II (2016)
Annexure A-26	K. Sivakumar, V.B. Mathur and Anant Pande, Coastal And Marine Protected Areas In India: Challenges And Way Forward, Wildlife Institute of India, ENVIS
Annexure A-27	R. S. Bhalla, Conservation of the Kalivelli Wetland Complex, Foundation for Ecological Research, Advocacy and Learning, July, 2011
Annexure A-28	The Ground Beneath the Waves: Post Tsunami Impact Assessment of Wildlife and their Habitats in India, Wildlife Trust of India (2005)
Annexure A-29	National Symposium on Conservation and Valuation of Marine Biodiversity, Zoological Survey of India (2007)
Annexure A-30	Srinivasan.R, Jayagopal. R, Regional Seismic and Tsunami Susceptibility Assessment of ChennaiNagapattinam Coast of Tamilnadu and Pondicherry, International Journal of Emerging Trends in Science and Technology (2017)
Annexure A-31	Krishnan Silambarasan and Arumugam Sundaramanickam, Assessment of Anthropogenic Threats to the Biological Resources of Kaliveli Lake, India: A Coastal Wetland, Coastal Research Library, Springer International Publishing(2017)
Annexure A-32	Jagdish K rishnaswamy, Ananya Baruah, Nelum Wick ramasinghe and V. Srinivas, Trends and Patterns in Hydrology and Water Quality in Coastal Ecosystems and Upstream Catchments in Tamil Nadu, India, UNDP, Ashoka Trust for Research in Ecology and the



	Environment (ATREE), United Nations Team for Tsunami Recovery Support (2008)
Annexure A-33	Kaluveli Tank and Yeduyanthittu, Birdlife Datazone, as on 02.03.2022
Annexure A-34	Important Coastal and Marine Biodiversity Areas(ICMBAs) in India, ENVIS, as on 02.03.2022
Annexure A-35	Standing Committee on Water Resources, Tenth Report: Repair, Renovation and Restoration of Water Bodies- Encroachment on Water Bodies and Steps Required to Remove the Encroachment and Restore the Water Bodies, August, 2016
Annexure A-36	Conservation and Survey Division, Ministry of Environment and Forests, Government of India, National Wetland Conservation Programme Guidelines for Conservation and Management of Wetlands In India, June, 2009
Annexure A-37	State wise List of Wetlands in India, ENVIS, as on 02.03.2022
Annexure A-38	Turtle Nesting Data from Chengalpettu, January and February, 2022
Annexure A-39	Photos taken of the Project Site on 28.02.2022
Annexure A-40	Photos from EBird website as on 02.03.2022
Annexure A-41	CRZ Notification, 2011
Annexure A-42	SCZMA & DCMA Recommendations for Respondent No. 1
Annexure A-43	Land Document for Villupuram and Chengalpettu district
Annexure A-44	Respondent No. 1's letter dated 03.07.2020

- c. The Appellant further filed an affidavit dated 04.03.2022 along with documents as File C. These documents are marked as Annexures Annexure-A- 45 to Annexure-A- 49.

Annexure A-45	Photos showing biodiversity at the project site
Annexure A-46	Kaluvveli wetlands IBA classification
Annexure A-47	TNPCB procedure for obtaining Consent
Annexure A-48	TNPCB Online Consent Management and Monitoring System website
Annexure A-49	Photos of the project site as on 04.03.2022

Rejoinder to counter filed by 1st respondent – Fisheries Department

4. I have read the counter affidavit filed by the 1st respondent project proponent and wish to deny the contents of the same as false, except to the extent expressly admitted hereunder and put the respondent to strict proof of the allegations made therein. Without prejudice to the above denial, the following reply is tendered.
5. I submit that a reading of the counter affidavit filed by the 1st respondent fisheries department (referred to as project proponent or PP) demonstrates beyond doubt that the PP has no understanding of the area where the project is proposed to be sited. The Yedayanthittu estuary does not even figure in the PP's consideration as an ecologically significant area. It is also demonstrative of the PP's proclivity for false statements - from claiming that the proposed fishing harbours will help birds and turtles to making claims that are contradicted by its own EIA report. The PP appears to be completely ignorant of the fact that the ecologically sensitive and significant Kaluvveli wetlands is not limited to the area declared as a bird sanctuary and that the Yedayanthittu estuary is an integral part the wetland ecosystem.



Kaluveli tank/lake, Creek and Yedayanthittu Estuary are not separate entities

6. The Yedayanthittu estuary, the Uppankali creek and the Kaluveli tank are part of one wetland system. Different portions of it are known by different names. They are ecologically contiguous and are part of one unique system – having saline, brackish and fresh water ecosystems. Only a portion of the Kaluveli lake was declared as a bird sanctuary by the state government, however, the entire system is an important bird area and has been recognised as such.
 - a. For example, Birdlife international and Bombay Natural History Society (BNHS) have declared the entire area comprising of the Yedayanthittu Estuary and the Kaluveli lake as an important bird area (IBA). In fact Islam & Rahmani (2008) recommended that the Yedayanthittu Estuary and the Kaluveli lake be declared as Ramsar site. Please see page 324 @ 327 of File B. News reports of bird census is annexed as Annexure A69.
 - b. The MoEF & CC mapped wetlands in the Country under National Wetland Inventory and Assessment (NWIA) program. ISRO's Space Application Centre used satellite mapping and ground truthing to map wetlands and Atlas of wetlands for each state was published. In the Atlas for Tamilnadu, The entire wetland (not just the kaluveli lake) has been mapped. Extract from the wetland atlas is annexed as **Annexure A-50**. Interestingly, the entire area has been classified as inter tidal mudflats (inter tidal mudflats are also wetlands).
 - c. The Yedayanthittu estuary, the Uppankali creek and the Kaluveli tank together have been marked as a "wetland of international importance" by the MoEF & CC and a total area of 7500 Ha has been marked. Extract of the webpage of the MoEF & CC and the Office Memorandum is annexed as **Annexure A-51** In scientific literature, reference to "Kaluveli" does not mean only the lake but the entire wetland, including the estuary.
 - d. The Wildlife Institute of India in its report titled "coastal and marine protected areas in India : Challenges and Way forward" , has identified Kaluveli as "Important coastal and marine Biodiversity areas of

Peninsular India” . The map of the area to be protected at (http://wiienvi.nic.in/WriteReadData/UserFiles/image/ICMBA_maps/96TN%20Kaliveli.jpg) marks the entire system.

- e. The coastal and offshore waters in the wetland and estuarine areas of Marakkanam, Kaluveli, Alamparai and Odiyoor were identified to be socially and ecologically very important and sensitive.
 - f. Cetaceans using these waters are humpback Dolphins, bottlenose dolphins, killer whales, sperm whales etc. A report submitted to the Marine Mammals Commission, Washington D.C has been filed as Annexure A-18 @ page 236 File-B. An opinion dated 17.03.2022 from Dr. Dipani Sutaria was also submitted to the committee, along with news reports are filed as **Annexure A-52**
7. Therefore, for proper appreciation of the issues involved in this case, it is important to first understand that this is a single wetland system that is impacted by any change in hydrology, pollution etc and its unique biodiversity is extremely vulnerable to increased motorised fishing traffic, coastal erosion and other impacts that will be caused by the proposed harbours, breakwater etc.
 8. It is also necessary to understand that the present case does not concern whether a harbour is necessary or not – it concerns the question as to whether the proposed harbours can be located at an extremely important, significant biodiversity rich area and whether the clearance obtained has been issued in accordance with the law.
 9. The contents of para 1 are for the information of this Hon’ble Court and does not call for any reply from the appellant.
 10. The contents of para 2 and 3 are denied as false. It is seen from this paragraph that even according to the PP there are only 10 Mechanised fishing vessels in Chengalpet district and 18 in Villupuram district. The majority of fishermen are



23. Erosion of about 60 meters between 2005 and 2020/2017 puts the average erosion rate at more than 1 meter a year. The National Centre for Coastal Research's report itself states that the report is not intended to predict future shoreline positions or rates of change. The PFR contains site specific assessment of shoreline change and it indicates erosion of the coastline. The fishermen hamlet of Panaiyurkuppam, located about 4 Km from the estuary has requested seawalls citing coastal erosion. It is submitted that the dynamism of the subject shoreline is not recorded or reflected in the NCCR's report. Construction of breakwaters or training walls in this dynamic coast would exacerbate the problem of erosion already being faced by this shoreline.
24. The contents of B to F are denied as false. The false information provided have been detailed in the appeal and has not been denied by the 1st respondent. A reading of the EIA report will demonstrate that it has not assessed any impact and the challenge is to the decision-making process. The respondent has admitted to collecting data during monsoon period and the attempt to state that October – November is not monsoon period for this coast is futile.
25. The contents of G is denied as false and it is demonstrative of the complete failure of the 1st respondent to understand the unique hydrology of the Kaluveli wetland complex. The respondent is under the mistaken assumption that increase in salinity will help the wetland. Opening the sand bank to form a permanent channel between the marine and brackish water systems will affect the salt water to fresh water gradient and the hydro-dynamics of the ecosystem, therefore species adapted to certain salinity and physical regimes will not be able to survive.
26. The contents of H,I, J are denied as false. It is submitted that the public hearing notices filed by the respondent are both in English. Publishing a notice in English in a Tamil daily is pointless. Further, the objections raised during public hearing have not been considered. The process of appraisal by SEIAA and SEAC have been impugned and will have to be tested on the merits of their conduct.



27. The contents of K and L are denied as false. They are repetitive and contrary to the record.
28. The contents of the unnumbered paragraph under the head "grounds" is denied as false. The PP appears to be under the misconception that if something is not marked in the CZMP, it does not exist in the real world. The Hon'ble High Court, Madras has also recognised that the 2018 CZMPs were inchoate and that a proper exercise has to be carried out while preparing the 2019 plans based on objections raised by the petitioner therein. Copy of the orders of the Hon'ble Court are annexed as **Annexure A-57** and **Annexure- 58** respectively. Further, in so far as this CZMP sheet of Kaluveli is concerned, as early as September 2020 representations were sent by civil society to the authorities bringing to their attention that ecologically sensitive features like seagrass beds, mudflats, salt marsh, turtle nesting grounds etc have not been marked in the CZMP and that it needs to be revised. Said representation is annexed as **Annexure A70**.
29. Firstly, the report of the Annamalai university confirms turtle nesting on this shoreline. The report states that 50-70 nests are found in these shores. The conclusion that it is "sporadic" is flawed. The report compares the numbers with the arribada in Gahirmatha coast (marine sanctuary) in Orissa where thousands of turtles congregate in a mass nesting event. Mass nesting occurs only in THREE locations globally – a beach in Mexico and Costa Rica apart from Gahirmatha. To compare these mass nesting grounds with regular nesting grounds itself is flawed and illogical. Turtle nesting grounds are very important as they are habitats of schedule I species – protected on the same list as the Tiger and entitled to the same protection. Going by this logic, the TN forest department should not be managing turtle nesting programs along the coast in nesting grounds.
30. Firstly, the subject shores along Alamparai are active nesting grounds. In this season alone, 70 nests were identified and hatchlings were released. Over the



last 10 years, more than 36,000 hatchlings have been released from this coast. This nesting cannot be called "sporadic". It is important to remember that Turtles comes back to the same beach they were born to nest. It is important to protect and preserve these coastal habitats. Secondly, the CRZ Notification, 2011 does not distinguish between sporadic or active grounds – if factually there are turtle nesting on a beach, then the beach is a turtle nesting ground and entitled to protection under law. The respondent is under the misconception that the turtles nest in the estuary mouth itself – it is the beaches on the northern shore, which are slated to erode even according to the EIA report, that are a matter of concern. These are active nesting grounds. It is not the precise area between two points but the shore that matters. Turtles cannot be directed into a designated area like traffic.

31. The report of the NCSCM is not intended to identify turtle nesting grounds but an assessment of the value of its ecological services. The report mentions only 3 districts – it does not even cover all the villages mentioned in the G.O issued by the State Government. Even G.O issued by the State is also not a comprehensive list of all nesting grounds. Nesting grounds can be identified based on nesting data – that is available with the forest department and civil society organisations working on turtle conservation with the forest department.
32. The claim of the project proponent that the harbours will help turtle nesting once again a false claim. Getting entangled in fishing nets, propeller hits are the major causes for turtle mortality. Increased fishing traffic, especially large motorised fishing vessels will lead to increased turtle mortality. According to the counter affidavit , a grand total of 28 MFVs are there in both these districts, which are said to use this area to fish. According to the PFR, a total of 220 MFVs are expected to operate from each harbour. This increase in traffic will spell death knell for turtles that come ashore to nest and migrate along this coast.



33. Eco-sensitivity of a coastal landscape includes impact on marine fauna, especially on marine megafauna like whales and dolphins which are globally threatened and are all schedule 1 species. They are also protected by international laws such as the Convention on Migratory species. The waters near Kaveli estuary are a cetacean (whales and dolphins) hotspot on the East Coast of India, as shown by previous studies (Annexure A - 18) and the opinion of Dipani Sutaria from Marine Mammal Conservation and Research Network, India. This has no mention in the committee's report, although sent to them before hand, given that mechanized fishing gravely threatens marine megafauna through trawler-strikes, by-catch and drowning through ghost-nets.
34. The Cetaceans which have been directly observed here are Humpback dolphins, Finless porpoises, Bottlenose dolphins, Spinner dolphins, pan-tropical spotted dolphins, Striped dolphins, Risso's dolphins, Pilot whales, Killer whales, Sperm whales, Blue whales and Bryde's whales. Other species that have beached live or have been found as carcasses include Rough toothed dolphins, Common dolphins, Cuviers beaked whales, Dwarf sperm whales and false killer whales. The protection and distribution of marine megafauna needs to be an important part of planning a harbour site, yet this is absent in the project proponent's EIA as well as the committee report.
35. Further, TEDs are not in use in the State as evidenced by the fisheries department's own audit report in W.P No. 1499 of 2015. Copy of the audit report and a status report filed in the same writ petition by the fisheries department are annexed as **Annexure A-59** and **Annexure-A-60**. The turtle nesting data for the Alamparai coast is annexed as **Annexure- A-61, A71- 72**.
36. The contents of the paragraph under the head "helping the Kaluveli bird sanctuary" are denied as false. It is bad science. The respondent appears to be completely oblivious to the fact that opening the sand bank to form a permanent channel between the marine and brackish water systems will affect the salt water to fresh water gradient and the hydro-dynamics of the



ecosystem, therefore species adapted to certain salinity and physical regimes will not be able to survive. The respondent is not even aware of the unique hydrology of the Kaluveli wetlands. Submissions in this regard have been made earlier and may be read as part of this reply. Also using a newspaper report on Chilika to justify the opening of the bar mouth is telling of the complete lack of understanding of hydrology and biodiversity and ecosystems of the Kaluveli wetlands.

37. The contents of the paragraphs under "mangrove afforestation" are denied as false. The plan includes steps to introduce alien species of mangroves to this ecosystem. The repeated claim of the respondent that the harbours will help Kaluveli wetlands is entire false and has no merit.

38. Harbours can be constructed elsewhere, but wetland complexes like the Kaluveli, which is the second largest in Tamilnadu after Pulicat, need to be protected and preserved from further anthropocentric pressures. Wetlands are fast disappearing and along with it, habitats for birds and association flora and fauna. There is an urgent need to adopt an eco-centric approach and protect these fragile, ecologically significant and biodiverse areas from destruction.

39. The respondent has not responded to the contentions made in the appeal and liberty is reserved to make necessary submissions in this regard. The impugned clearance deserves to be quashed.

Rejoinder to counter filed by Respondent No.2 - SEIAA

40. The contents of para 1 to 3 do not call for any reply from the appellant and are general statements for the information of this Hon'ble Court.

41. In para 4 and 5 of the affidavit under reply, the respondent has expressly stated that the 1st respondent obtained "CRZ clearance" from the 5th respondent herein and that based on such clearance, the 1st respondent approached the SEIAA for environmental clearance under the EIA Notification, 2006. It is

52. In para 14, the TNSCZMA admits that the project requires clearance from the SEIAA under clause 4.2 of the Notification. However, in para 15 and 16, it is seen that the TNSCZMA cleared the proposal by circulation on 06.06.2020 and "clearance" was issued by them with conditions mentioned therein.
53. In para 17, the TNSCZMA reiterates the submission of the appellant that the TNSCZMA does not have any powers to issue clearance and at para 18 clearly states that clearance was issued by them and that clearance ought to be obtained from the "(SEIAA) with reference to the EIA Notification, 2006".
54. It is thus clear that the TNSCZMA issued clearance under the CRZ Notification, 2006 and the condition only specified that clearance has to be obtained from SEIAA under the EIA Notification, 2006. The SEIAA has also not appraised the project and its impacts in terms of the CRZ Notification and has proceeded on the basis that "clearance" under the CRZ Notification, 2011 was issued by the TNSCZMA, as is evident from even the impugned Environmental clearance. It is reiterated that this is contrary to clause 4.2 of the CRZ Notification, 2011. A wholistic appraisal and clearance of projects attracting the EIA Notification and CRZ clearance is to be done and clearance on both aspects have to be issued by the SEIAA in strict compliance of the law. The present project thus does not even have a validly issued clearance under the CRZ Notification.
55. It is seen from the form submitted by the 1st respondent to TNSCZMA at serial number 1.1 that the inter tidal area where the project is to be constructed has been described as "barren land" – the fact that it is a biologically active - habitat for fiddler crabs, mudskippers, birds, oysters, salt marsh vegetation etc have been entirely suppressed. Further at 1.24, it has been stated that no new roads are proposed on the Alamparai kuppam side – however, a rubble road has been laid illegally on the beach – on dune areas. In fact turtle nests on the alamparai side are along this illegal road. This road is entirely illegal.



There has also been no consideration of impact on marine life, cetaceans (any member of an entirely aquatic group of mammals commonly known as whales, dolphins, and porpoises), the nature of the proposed sites etc.

59. The entire process of granting clearance has been divorced from any appreciation of the biodiversity, ecological significance and hydrology of the Kaluveli wetland complex. Siting of the proposed harbours in the Kaluveli waters will result in destruction of a precious natural heritage. It is prayed that this Hon'ble Tribunal be pleased to allow the appeal and quash the clearance as prayed and thus render justice.

Objections to the Report of the Joint Committee

60. When the matter was taken up for hearing on 04.03.2022, the Hon'ble Tribunal was pleased to admit the appeal being satisfied with the grounds raised. The Hon'ble Tribunal also appointed a Joint Committee consisting of
- (i) Senior officer from MoEF&CC Regional office, Chennai
 - (ii) An officer from the Forest Department not below the rank of Conservator of Forests as nominated by the PCCF and chief Wildlife Warden.
 - (iii) A senior scientist having expertise in shoreline dynamics and marine biology from the National Institute of Ocean Technology (NIOT), Chennai.
61. I state that as per the order of this Hon'ble Tribunal, the Joint Committee consisting of the above persons was appointed " ***to inspect the area in question and submit a factual report to the Tribunal on the following aspects:***
- (i) Whether the area falls under CRZ-IA and whether the area has been notified as Olive Ridley nesting
 - (ii) Whether the establishment of the project will have any impact on the Kaluveli bird sanctuary
 - (iii) Whether the area is rich in biological diversity including active mudflats, seagrass beds, sand dunes, salt marshes etc.

- (iv) Even if the project is a permissible activity and if it has to come up, what are the necessary further conditions to be imposed to mitigate the impact on the eco-sensitive zones mentioned above.

62.I state further that considering the urgency of the matter, the Committee was directed to inspect the area immediately without delay and submit a report.

63.I state that on 14.03.2022, my counsel received communication from the Deputy Inspector General of Forests, Mr. Sasikumar that pursuant to the above order of the Hon'ble Tribunal a Joint Committee had been constituted consisting of the following persons:

1. Shri S.Sasikumar IFS, Deputy Inspector General Forests (Central) MoEF&CC, Integrated Regional Office, Chennai,
2. Ms. Mita Banerjee, IFS, Addl Principal Chief Conservator of Forests, Government of Tamil Nadu and
3. Dr Vijaya Ravichandran, Scientist G, National Institute of Ocean Technology (NIOT), Chennai

64.The said communication also requested our presence during the proposed inspection on 15.03.2022 at 10.30 am. Copy of the same is produced as **Annexure – A- 63.**

65.I state that I was present at the project site along with my counsel by 9.30 am on 15.03.2022. However, we were informed by Dr. Lal (MoEF) that there was a delay, and they would arrive later. Thereafter around 12 noon, we were directed to the forest guest house near Marakanam, where Ms. Mita Banerjee and one Mr. Kiran from NIOT had arrived.

66.Since the MoEF team was still on the way, it was decided by the committee members that we should travel to the Azhagankuppam site, where the MoEF team would arrive. It was announced that Dr. Vijaya Ravichandran from NIOT was not present and instead of her, Dr. Kiran was present.



67. After an initial briefing, the committee interacted with the sea faring fisherfolk association representatives who had arrived there at the request of the fisheries department and the inspection commenced.

Dr. Vijaya Ravichandran (NIOT) was not present on 15.03.2022

68. As stated above, Dr. Vijaya Ravichandran was not present during the inspection, however, the undated report of the Joint Committee submitted to the Hon'ble NGT and served on my counsel on 18.04.2022 has been signed by Dr. Vijaya Ravichandran and entire report reads as if she was also present during the site visit on 15.03.2022.

69. I am advised to state that the reports of committees constitute valuable evidence in such judicial proceedings and an individual who was not present during the visit cannot sign as if she was present and endorse the observations and findings of the site visit.

70. The report of Commissions such as these to conduct local investigations have evidentiary value and a person who was not present at the site of the investigation cannot claim to have authored the final report of such a visit. The entire report of the Joint Committee ought to be rejected on this aspect alone.

71. Notwithstanding the fact that the entire report of the Joint Committee ought to be rejected on the above ground of absence of one of the signatories of the report at the site inspection, the following objections to the Committee's findings on merits are placed before this Hon'ble Tribunal.

Whether the area falls under CRZ-IA and whether the area has been notified as Olive Ridley Turtle nesting

72. I state that the Joint Committee addresses this aspect under point 3.1 of the report.



73.I state that the Committee's conclusion that the project implementing area is not falling in CRZ-IA and not an Olive Ridley Nesting area is blatantly false for the following reasons:

- a. On the day of the site-visit, fresh tracks of an Olive Ridley sea-turtle and active nest along with an old nest and turtle carcass were observed by the Committee. (Picture of the turtle tracks and carcass are produced).
- b. It was informed by the Ranger present at the site that they patrolled the entire sand bar from the Azhagankuppam side for turtle nests.
- c. It was requested that the committee members requisition turtle nesting data for the subject coasts from the forest department.
- d. On 18.03.2022 (2 days after the committee visit), new Turtle nests were located along the rubble road constructed on the beach leading to the estuary mouth. (Alamparai side) and hatchlings also emerged from nest on this stretch in the morning and were released. This information along with photos with GPS location and videos were sent to the members of the Joint Committee by the Counsel for the Appellant the very same day. The report of the Joint Committee is completely silent on this aspect.
- e. On 26.03.2022, the Counsel for the Appellant further wrote to one of the members of the Joint Committee requesting that the Committee may requisition turtle nesting data from the Forest Department. The report of the Joint Committee makes it clear that no such request was made and despite the data being available with the Forest Department, the same was not requisitioned by the Committee and the Committee concluded that the project "site" was not a turtle nesting ground solely on the basis of the site inspection lasting a couple of hours. Copies of the emails to the Committee are produced as **Annexure- A- 64**
- f. The Joint Committee has completely turned a blind eye to the most current data on turtle nesting on Alamparai side available along with the Appeal documents (Page 450, File B).
- g. Instead, the report of the Joint Committee places reliance on data that is two decades old, available in the book titled "Marine turtles of the



Indian Sub-continent" based on sampling carried out in 2001. In fact, a later report by the WII in 2016, the nesting rate is mentioned as 9.8 nests/km/season and the same has been ignored by the Committee. Extract from the report is produced as **Annexure- A-65**.

- h. Turtle nesting activity usually takes place at mid-night and early mornings. The survey by the Joint Committee took place at noon and to conclude that the area is not an important turtle nesting area based on a short afternoon visit is erroneous.
- i. The Joint Committee failed to take note of the fact that as per G.O.Ms. 146 dated 27.09.2016 , Alagankuppam in Villupuram District is identified as a turtle nesting location (Page 189 of File A).
- j. The beaches near the estuary are turtle nesting grounds. Despite noticing facts and being presented with facts and data that would conclusively prove that the site qualifies to be classified as CRZ-IA, the Joint Committee has relied on outdated data and suppressed findings from the site visit to arrive at an erroneous conclusion.
- k. The committee appears to have only considered whether they found turtles between point A and B between which the training walls are proposed. They have ignored the fact that the CRZ Notification, 2011 mentions turtle nesting "grounds" and not sites between two narrow points. The impact of the breakwater (training walls) will be the erosion of the Alamparai shore on the northern side – which is an active turtle nesting ground. The committee failed to consider this aspect.

Whether the establishment of the project will have any impact on the Kaluveli bird sanctuary

74. The Joint Committee considers this aspect in para 3.2 and concludes that the present project "may not have any significant impact on the Kaluveli Bird Sanctuary" solely relying on the fact that the project site does not fall within the default eco-sensitive zone of 10 kms from the bird sanctuary." The said conclusion is completely flawed for the following reasons:

- a. On the day of the site visit, the Appellant pointed to over 30 species of migratory birds and shorebirds that had congregated in hundreds at the estuary mouth and project site. The Joint committee report has failed to report this information and data.
- b. The estuary is ecologically contiguous with the bird sanctuary. eBird data records 164 bird species at the mouth itself and several of the species are globally threatened, migratory and protected.
- c. The committee is not aware that the Kaliveli estuary is also a declared Important Bird Area (IBA) and an Important Coastal and Marine Biodiversity Area (ICMBA). The estuary and creek are also declared wetlands by MoEFCC and ISRO under the National Wetland Inventory of 2011. Basic research about the site would have given this information. Moreover, on the day of the survey, the appellant pointed out to the executive committee over 30 species of migratory birds and shorebirds that had congregated in their hundreds at the estuary mouth and at the project sites. No mention of this is there in the report. The committee members also saw birds through the scope brought by the appellant.
- d. Further, the committee has failed to see that the Kaluvveli lake, creek and Yedayanthittu estuary are contiguous. The unique hydrological regime of the wetland complex will be altered by the opening of the river mouth and the exponential increase in the quantum and duration of influx of seawater into the estuary. The increased influx of seawater will increase the salinity of the wetland as well as impact the fresh water ecosystem of the Kaluvveli lake and the creek. The committee has concluded that there will be no impact on the sanctuary merely because it is outside the default 10 km eco sensitive zone. The committee appears to have completely ignored these aspects and appears to be unaware of the ecological significance and recognition of the estuary as an important bird area, wetland of international importance etc.



Technical Engineering

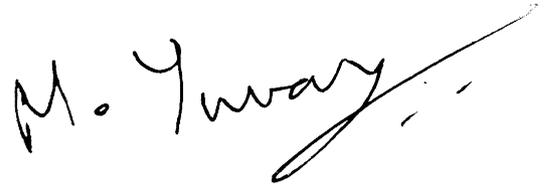
Documents stating the above are annexed as **Annexure A-66**

86. It is submitted as per the original constitution of the Committee, Dr. Vijaya Ravichandran (Scientist G) was supposed to form part of the inspection team from NIOT. According to the order of this Hon'ble Tribunal, a senior scientist having expertise in shoreline dynamics and marine biology from NIOT ought to have been part of the inspection team. However, as pointed out earlier, Dr. Vijaya Ravichandran did not form part of the inspection team on 15.03.2022 and another representative from NIOT, Mr. Kiran was present. However, the final report has been signed by Dr. Vijaya who was not present on that day.
87. It is submitted that the ecological significance of the Kaluveli wetland complex has been well documented. Turtle nesting has been well documented. Experts in the field including institutions like BNHS and Dhakshin, Foundation who have worked on this wetland complex were contacted for their expert opinions and they are annexed along with this report as **Annexure A-67**. A pointed critique by the appellant has also been endorsed by several subject matter experts, copy of which is annexed as **Annexure A-68**.
88. I am advised to submit that as per the NGT Act, 2010, this Hon'ble Tribunal has powers akin to a civil court including the power to summon and enforce the attendance of any person and examining him on oath, receiving evidence on affidavits and issuing commissions for the examination of witnesses and documents.
89. I am further advised to state that a committee appointed by this Hon'ble Tribunal to conduct a fact-finding inspection performs the role of a Commissioner conducting local investigation under Order 26 Rule 9 of the Code of Civil Procedure and the report of the Commissioner shall be evidence in the suit and shall form part of the record. The Commissioner /Members of the Joint Committee may also be subjected to examination in open court touching any of the matters referred to him or mentioned in his report or as to the report or the manner in which the investigation has been made. I reserve the right to



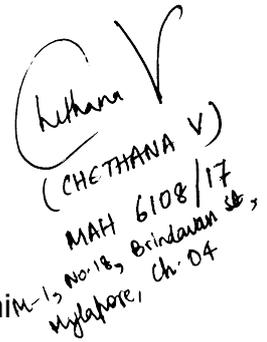
seek permission from this Hon'ble Tribunal to summon the members of the Joint Committee for examination under Order 26 Rule 10 (2) of the CPC.

90.I therefore pray that for the reasons stated above, this Hon'ble Tribunal may be pleased to reject the undated report of the Joint Committee submitted on 18.04.2022 and render justice.



Solemnly affirmed on this the]
18th day of April, 2022 and signed]
his name in my presence]

Before me,



(CHETHANA V)
MAH 6108/17
No-18, Brindavan St,
Mylapore, Ch. 04

Advocate, Chennai



NATIONAL WETLAND ATLAS: *TAMILNADU*



Sponsored by
Ministry of Environment and Forests
Government of India



Space Applications centre
Indian Space Research Organisation
Ahmedabad – 380 015



This publication deals with the updated database and status of wetlands, compiled in Atlas format. Increasing concern about how our wetlands are being influenced has led to formulation of a project entitled “National Wetland Inventory and Assessment (NWIA)” to create an updated database of the wetlands of India. The wetlands are categorised under 19 classes and mapped using satellite remote sensing data from Indian Remote Sensing Satellite: IRS P6- LISS III sensor. The results are organised at 1: 50, 000 scales at district, state and topographic map sheet (Survey of India reference) level using Geographic Information System (GIS). This publication is a part of this national work and deals with the wetland status of a particular State/Union Territory of India, through text, statistical tables, satellite images, maps and ground photographs.

The atlas comprises wetland information arranged into nine sections. How the NWIA project work has been executed highlighted in the first six sections viz: Introduction, NWIA project, Study area, Data used, Methodology, and Accuracy. This is the first time that high resolution digital remote sensing data has been used to map and decipher the status of the wetlands at national scale. The methodology highlights how the four spectral bands of LISS III data (green, red, near infra red and short wave infra red) have been used to derive various indices and decipher information regarding water spread, turbidity and aquatic vegetation. Since, the aim was to generate a GIS compatible database, details of the standards of database are also highlighted in the methodology.

The results and finding are organised in three sections; viz: Maps and Statistics, Major wetland types, and Important Wetlands of the area. The Maps and Statistics are shown for state and district level. It gives details of what type of wetlands exists in the area, how many numbers in each type, their area estimates in hectare. Since, the hydrology of wetlands are influenced by monsoon performance, extent of water spread and their turbidity (qualitative) in wet and dry season (post-monsoon and pre-monsoon period) are also given. Similarly the status of aquatic vegetation (mainly floating and emergent types) in two seasons is also accounted for. Status of small wetlands are also accounted as numbers and depicted in maps as points. Wetland map also show important ancillary information like roads/rail, relevant habitations. False Colour Composite (FCC) of the satellite image used (any one season) is shown along with the derived wetland map to give a feeling of manifestation of wetlands in remote sensing data and synoptic view of the area. The status of some of the important wetlands like Ramsar sites, National Parks are shown with recent field photographs.

For further details contact:

Director,
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NATIONAL WETLAND ATLAS

TAMILNADU

**Sponsored by
Ministry of Environment and Forests, Government of India**

As a part of the project on National Wetland Inventory and Assessment (NWIA)

Space Applications Centre (ISRO), Ahmedabad

and

Institute of Remote Sensing, Chennai

May 2010

1.3 Wetland Inventory of India

India with its large geographical spread supports large and diverse wetland classes, some of which are unique. Wetlands, variously estimated to be occupying 1-5 per cent of geographical area of the country, support about a fifth of the known biodiversity. Like any other place in the world, there is a looming threat to the aquatic biodiversity of the Indian wetlands as they are often under a regime of unsustainable human pressures. Sustainable management of these assets therefore is highly relevant. Realising this, Govt. of India has initiated many appropriate steps in terms of policies, programmes and plans for the preservation and conservation of these ecosystems. India is a signatory to the Ramsar Convention for management of wetland, for conserving their biodiversity and wise use extending its scope to a wide variety of habitats, including rivers and lakes, coastal lagoons, mangroves, peatlands, coral reefs, and numerous human-made wetland, such as fish and shrimp ponds, farm ponds, irrigated agricultural land, salt pans reservoirs, gravel pits, sewage farms, and canals. The Ministry of Environment and Forests has identified a number of wetlands for conservation and management under the National Wetland Conservation Programme and some financial assistance is being provided to State Governments for various conservation activities through approval of the Management Action Plans. The need to have an updated map database of wetlands that will support such actions has long been realized.

Mapping requires a standard classification system. Though there are many classification systems for wetlands in the world, the Ramsar classification system is the most preferred one. The 1971 Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat is the oldest conservation convention. It owes its name to its place of adoption in Iran. It came into being due to serious decline in populations of waterfowl (mainly ducks) and conservation of habitats of migratory waterfowl. Convention provides framework for the conservation and 'wise use' of wetland biomes. Ramsar convention is the first modern global intergovernmental treaty on conservation and wise use of natural resources (www.ramsar.org). Ramsar convention entered into force in 1975. Under the text of the Convention (Article 1.1) wetlands are defined as:

“areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters”.

In addition, the Convention (Article 2.1) provides that wetlands:

“may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands”.

The first scientific mapping of wetlands of India was carried out during 1992-93 by Space Applications Centre (ISRO), Ahmedabad, at the behest of the Ministry of Environment and Forests (MoEF), Govt. of India using remote sensing data from Indian Remote Sensing satellite (IRS Series). The mapping was done at 1:250,000 scale using IRS 1A LISS-I/II data of 1992-93 timeframe under the Nation-wide Wetland Mapping Project. Since, no suitable wetland classification existed for comprehensive inventory of wetlands in the country at that time, the project used a classification system based on Ramsar Convention definition of wetlands. The classification considers all parts of a water mass including its ecotonal area as wetland. In addition, fish and shrimp ponds, saltpans, reservoirs, gravel pits were also included as wetlands. This inventory put the wetland extent (inland as well as coastal) at about 8.26 million ha. (Garg et al, 1998). These estimates (24 categories) do not include rice/paddy fields, rivers, canals and irrigation channels.

Further updating of wetland maps of India was carried out by SAC using IRS P6/Resourcesat AWiFS data of 2004-05 at 1:250000 scale. In recent years, a conservation atlas has been brought out by Salim Ali Centre for Ornithology and Natural History (SACON, 2004), which provide basic information required by stakeholders in both wetland habitat and species conservation. Space Applications Centre has carried out many pilot projects for development of GIS based wetland information system (Patel et al, 2003) and Lake Information system (Singh et al, 2003).

2.0 NATIONAL WETLAND INVENTORY AND ASSESSMENT (NWIA) PROJECT

Realising the importance of many small wetlands that dot the Indian landscape, it has been unanimously felt that inventory of the wetlands at 1:50,000 scale is essential. The task seemed challenging in view of the vast geographic area of our country enriched with diverse wetland classes. Space Applications Centre with its experience in use of RS and GIS in the field of wetland studies, took up this challenging task. This is further strengthened by the fact that guidelines to create geospatial framework, codification scheme, data base structure etc. for natural resources survey has already been well established by the initiative of ISRO under various national level mapping projects. With this strength, the National Wetland Inventory and Assessment (NWIA) project was formulated by SAC, which was approved and funded by MoEF.

The main objectives of the project are:

- To map the wetlands on 1:50000 scale using two date (pre and post monsoon) IRS LISS III digital data following a standard wetland classification system.
- Integration of ancillary theme layers (road, rail, settlements, drainage, administrative boundaries)
- Creation of a seamless database of the states and country in GIS environment.
- Preparation of State-wise wetland atlases

The project was initiated during 2007. The first task was to have a classification system that can be used by different types of users while amenable to database. An expert/peer group was formed and the peer review was held at SAC on June 2007 where wetland experts and database experts participated and finalized the classification system. It was agreed to follow the classification system that has been used for the earlier project of 1:250,000 scale, with slight modification. Modified National Wetland Classification system for wetland delineation and mapping comprise 19 wetland classes which are organized under a Level III hierarchical system. The definition of each wetland class and its interpretation method was finalized. The technical/procedure manual was prepared as the standard guideline for the project execution across the country (Garg and Patel, 2007). The present atlas is part of the national level data base and deals with the state of Tamilnadu.

2.1 Wetland Classification System

In the present project, Modified National Wetland Classification system is used for wetland delineation and mapping comprising 19 wetland classes which are organized under a Level III hierarchical system (Table 1). Level one has two classes: inland and coastal, these are further bifurcated into two categories as: natural and man-made under which the 19 wetland classes are suitably placed. Two date data pertaining to pre-monsoon and post monsoon was used to confirm the classes. Wetlands put to agriculture use in any of the two dates are not included as wetland class. Definitions of wetland categories used in the project is given in Annexure-I.

2.2.1 Spatial Framework and GIS Database

The National Spatial Framework) (NSF) has been used as the spatial framework to create the database (Anon. 2007) . The database design and creation standard suggested by NRDB/NNRMS guidelines is followed. Feature codification scheme for every input element has been worked out keeping in view the nationwide administrative as well as natural hierarchy (State-district- within the feature class for each of the theme. All data elements are given a unique name, which are self explanatory with short forms.

Following wetland layers are generated for each inland wetland:

- Wetland extent: As wetlands encompass open water, aquatic vegetation (submerged, floating and emergent), the wetland boundary should ideally include all these. Satellite image gives a clear signature of the wetland extent from the imprint of water spread over the years.
- Water spread: There are two layers representing post-monsoon and pre-monsoon water spread during the year of data acquisition.

- Aquatic vegetation spread: The presence of vegetation in wetlands provides information about its trophic condition. As is known, aquatic vegetation is of four types, viz. benthic, submerged, floating, and emergent. It is possible to delineate last two types of vegetation using optical remote sensing data. A qualitative layer pertaining to presence of vegetation is generated for each season (as manifested on pre-monsoon and post-monsoon imagery).
- Turbidity level of open water: A layer pertaining to a qualitative turbidity rating is generated. Three qualitative turbidity ratings (low, medium and high) is followed for pre and post-monsoon turbidity of lakes, reservoirs, barrages and other large wetlands.
- Small wetlands (smaller than minimum mappable unit) are mapped as point features.
- Base layers like major road network, railway, settlements, and surface drainage are created (either from the current image or taken from other project data base).

In the case of coastal wetlands only wetland extent is given.

Table 1: Wetland Classification System and coding

Wettcode*	Level I	Level II	Level III
1000	Inland Wetlands		
1100		Natural	
1101			Lakes
1102			Ox-Bow Lakes/ Cut-Off Meanders
1103			High altitude Wetlands
1104			Riverine Wetlands
1105			Waterlogged
1106			River/stream
1200		Man-made	
1201			Reservoirs/ Barrages
1202			Tanks/Ponds
1203			Waterlogged
1204			Salt pans
2000	Coastal Wetlands		
2100		Natural	
2101			Lagoons
2102			Creeks
2103			Sand/Beach
2104			Intertidal mud flats
2105			Salt Marsh
2106			Mangroves
2107			Coral Reefs
2200		Man-made	
2201			Salt pans
2202			Aquaculture ponds

* Wetland type code

7.1.7 Viluppuram

Viluppuram or (Villupuram) is the district headquarters of the Viluppuram district, which was bifurcated from the erstwhile composite Sourt Arcot district from 30th September, 1993. It is the Second largest district in the.

Total geographic area of Viluppuram is 7222.03 km². As per the 2001 census data, the population of the district was 2960373. The density of population was 406 persons per km² and literacy rate of the district was 64.70%.

Total area under wetland is 64105 ha, which includes 596 small wetland (<2.25 ha). Lakes/Ponds occupies 30.06% of wetland area. The major wetland type in the district is Tanks/Ponds. There are 1600 Tanks/Ponds with 25850 ha area (40.32%). The other wetland types are; Inter-tidal mudflats (10.99 %), Reservoirs (2.95 %) and River/Stream (11.40 %). Details of wetland statistics is given in Table 12.

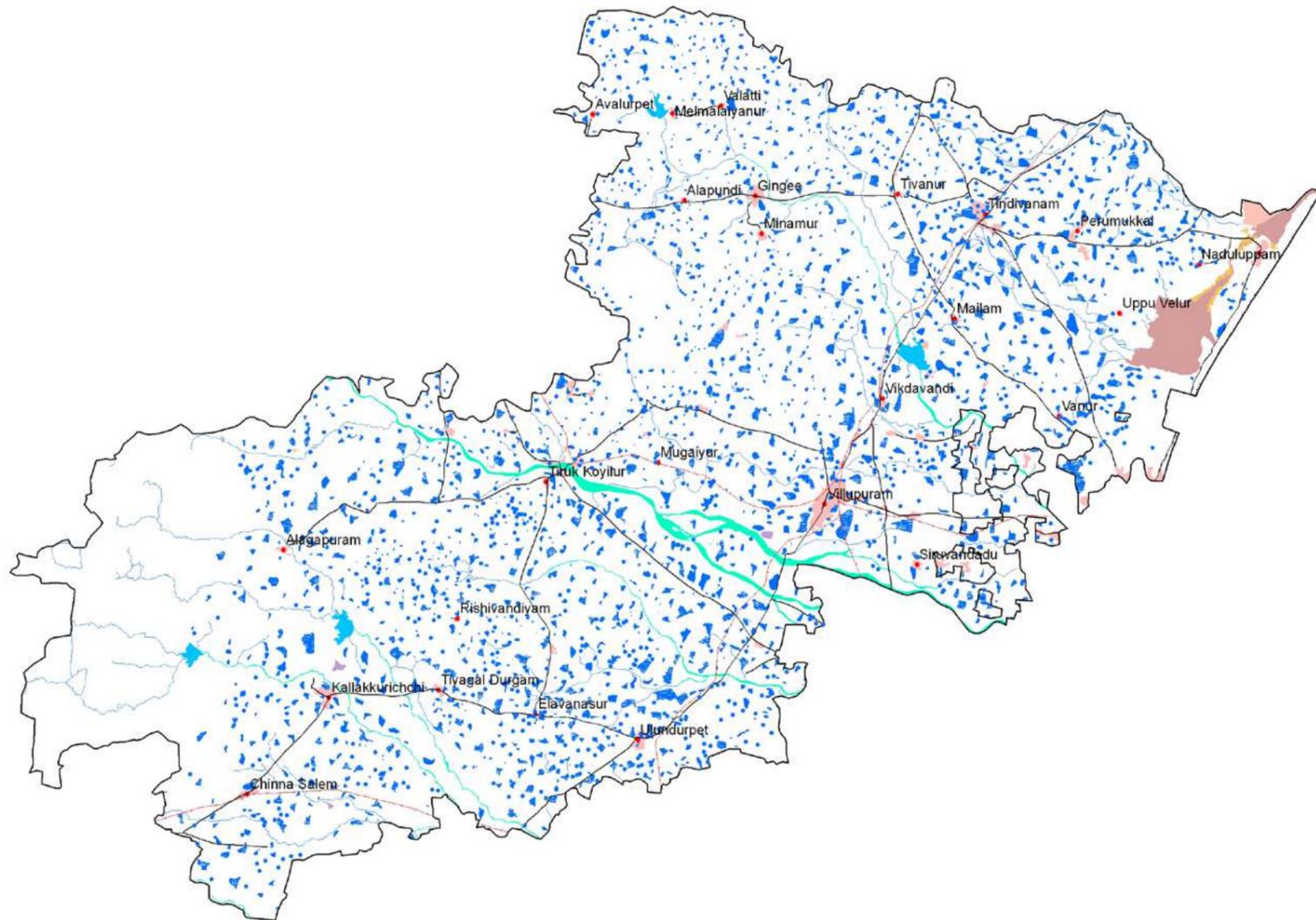
Aquatic vegetation is observed in Lakes/Ponds, and Tanks/Ponds. The area under aquatic vegetation is more during pre monsoon (45640 ha) than that of post monsoon (9134 ha). The open water spread significantly lower during pre monsoon (10230 ha) compared to post monsoon (46481 ha).

Table 12: Area estimates of wetlands in Viluppuram

Sr. No.	Wettcode	Wetland Category	Number of Wetlands	Total Wetland Area	% of wetland area	Open Water	
						Post-monsoon Area	Pre-monsoon Area
	1100	Inland Wetlands – Natural					
1	1101	Lakes/Ponds	316	19272	30.06	16148	779
2	1106	River/Stream	17	7310	11.40	7287	7287
	1200	Inland Wetlands -Man-made					
3	1201	Reservoirs/Barrages	4	1890	2.95	969	142
4	1202	Tanks/Ponds	1600	25850	40.32	20504	656
5	1203	Waterlogged	3	237	0.37	207	-
		Total - Inland	1940	54559	85.11	45115	8864
	2100	Coastal Wetlands - Natural					
6	2103	Sand/Beach	2	528	0.82	-	-
7	2104	Intertidal mud flats	1	7048	10.99	-	-
8	2106	Mangroves	1	8	0.01	-	-
	2200	Coastal Wetlands - Man-made					
9	2201	Salt pans	1	690	1.08	690	690
10	2202	Aquaculture ponds	11	676	1.05	676	676
		Total - Coastal	16	8950	13.96	1366	1366
		Sub-Total	1956	63509	99.07	46481	10230
		Wetlands (<2.25 ha), mainly Tanks	596	596	0.93	-	-
		Total	2552	64105	100.00	46481	10230

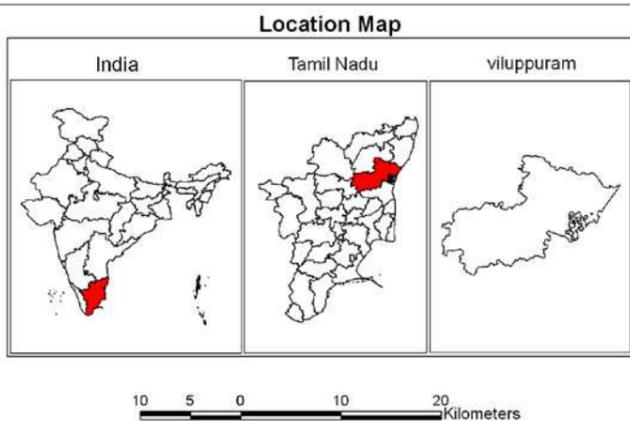
Area under Aquatic Vegetation	9134	45640
--------------------------------------	------	-------

Area under turbidity levels		
Low	37544	1836
Moderate	5689	5688
High	3248	2706



Symbol	Typecode	Level I	Level II	Level III
		Inland Wetlands		
			Natural	
	1101			Lakes/Ponds
	1102			Ox-bow lakes/ Cut-off meanders
	1103			High altitude wetlands
	1104			Reverine wetlands
	1105			Waterlogged
	1106			River/Stream
			Man-made	
	1201			Reservoirs/Barrages
	1202			Tanks/Ponds
	1203			Waterlogged
	1204			Salt pans
		Coastal Wetlands		
			Natural	
	2101			Lagoons
	2102			Creeks
	2103			Sand/Beach
	2104			Intertidal mud flats
	2105			Salt marsh
	2106			Mangroves
	2107			Coral reefs
			Man-made	
	2201			Salt pans
	2202			Aquaculture ponds

- Legend**
- Wetlands (<2.25ha)
 - Drainage (line)
 - Major Roads
 - Railway
 - Settlements
 - Town/Settlements
 - District Boundary
 - State Boundary
 - International Boundary



Data Source :
 IRS P6 LISS III data (Pre-monsoon and Post-monsoon Season 2006-07)

Prepared By :
 Space Applications Centre (ISRO), Ahmedabad
 and
 Institute of Remote Sensing, Anna University, Chennai

Sponsored By :
 Ministry of Environment and Forests
 Government of India

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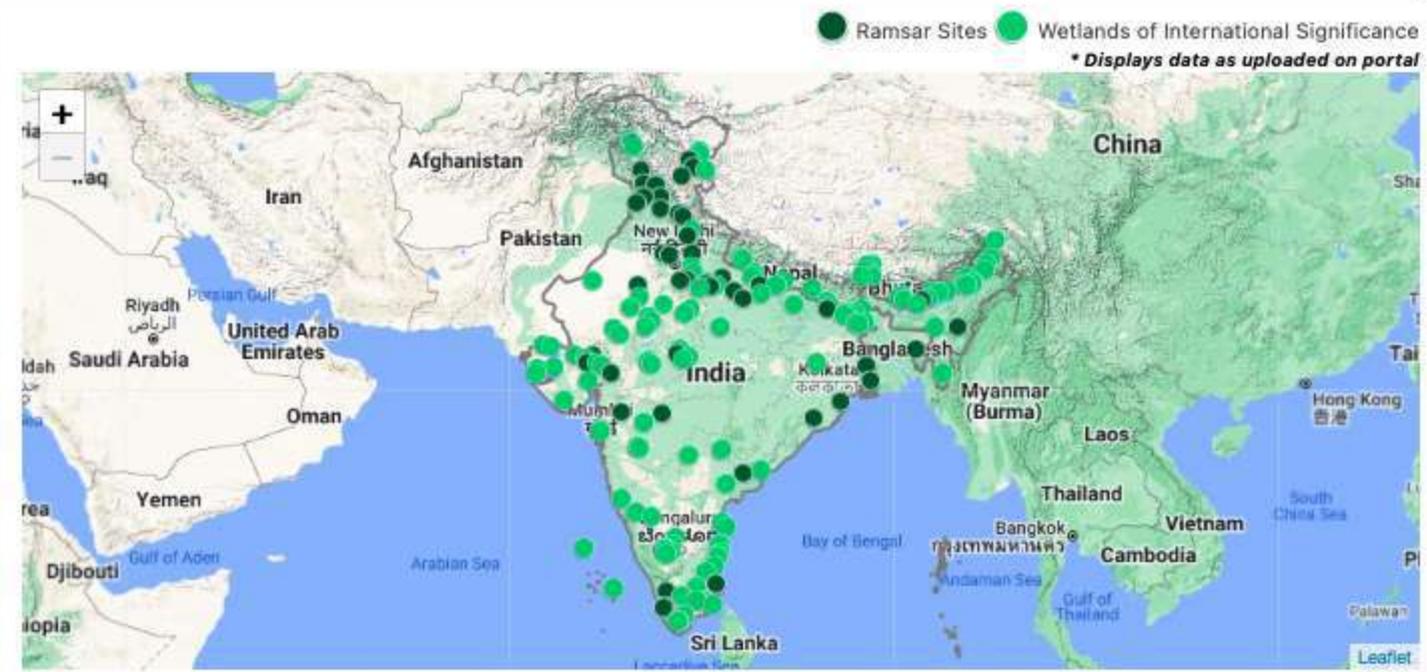
ANNEXURE 51

India's Wetlands of International Importance

India is home to a wide variety and a myriad number of wetlands. The wide range of precipitation patterns, physiography, geomorphology and climate have facilitated for this rich diversity. Each of these wetlands is an incomparable ecosystem with immense values. Some of these wetlands which are of particular conservation value can be termed Wetlands of International Importance. These are significant in their capacity to become model sites for the nation's commitment to conservation and management under internationally accepted framework.

India became a party to the 'Convention on Wetlands', also known as the Ramsar Convention on 1st February 1982 and has since then designated **49 wetlands** covering an area of 10,93,636 hectares under the List of Wetlands of International Importance which includes 5 sites designated during FY 2020-2021. Presently, India stands first in South Asia and third in Asia in terms of number of designated sites.

Scroll below to view the wetlands of international importance added to the portal.



Show

10 entries

Search:

yed

#	Name	District	State/UT	Area (Hectares)	Wetland Type	Remarks
160	Kaliveli Tank and Yedayanthittu Estuary	Thiruvallur	Tamil Nadu	7500.00000		Wetlands of International Significance

Showing 1 to 1 of 1 entries (filtered from 179 total entries)

F. No. W-4/4/2022-WTL
Government of India
Ministry of Environment, Forest & Climate Change
(Wetlands Division)

Indira Paryavaran Bhawan
Jor Bagh Road, New Delhi -110003

Dated 8th March, 2022

OFFICE MEMORANDUM

Subject: Protection of Wetlands as per Rule 4 of the Wetlands (Conservation and Management) Rules, 2017

The Hon'ble Supreme Court vide Order dated 4th October, 2017 in W.P. (C) No. 230 of 2001 has inter-alia, directed that, *"We make it clear and reiterate that in terms of our order dated 8th February, 2017, 2,01,503 wetlands that have been mapped by the Union of India should continue to remain protected on the same principles as were formulated in Rule 4 of the Wetlands (Conservation and Management) Rules, 2010"*.

2. The same has been communicated by this Ministry to all the States and UTs in November, 2017. Hon'ble NGT has also reiterated the same in various recent cases.

3. In view of above, it is once again clarified/reiterated that the 2,01,503 wetlands (>2.25 ha) as per the National Wetland Inventory and Assessment (NWIA), 2011 should be protected as per Rule 4 of the Wetlands (Conservation and Management) Rules, 2017. This protection is irrespective of the applicability of/notification as per the said Rules.

Ramesh

(Dr. M. Ramesh)
Scientist 'E'

Tel.: 011-20819249

Email: ramesh.motipalli@nic.in

To

The Member Secretaries of State and UT Wetlands Authorities

Villupuram District

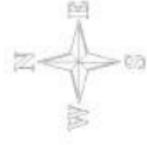
Edayarathittu estuary

Saltpan

Nadukuppam

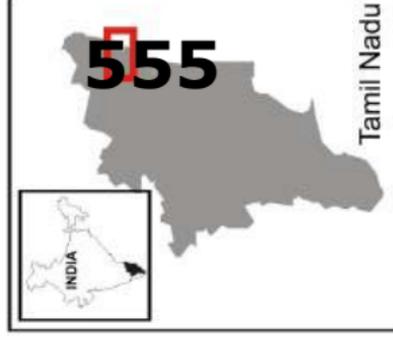
Kalivelli tank

BAY OF BENGAL



kilometers

Scale: 1:358,400



555

Tamil Nadu

Mainland

Mangroves

Swamp

Beaches

Area to be Protected

Dipani Sutaria, PhD - Ecologist, India
Senior Research Fellow, James Cook University, Australia
IUCN Cetacean Specialist Group
Marine Mammal Research And Conservation Network Of India www.marinemammals.in
Dipani.Sutaria@jcu.edu.au; Dipani.Sutaria@gmail.com

To

WHOMSOEVER IT CONCERNS

Research carried out by our team and the local network in the stretch between Cuddalore and Cheyyur 2015 onwards identified the coastal and offshore waters in the wetland and estuarine areas off Marakkanam, Kaliveli, Alamparai and Odiyur to be socially and ecologically very important and sensitive. These zones where brackish and freshwater entered the sea, had greater instances of cetacean sightings, both from systematic surveys and from interview surveys of fishers and other sea going communities. Cetacean sightings are indirect evidence of the presence of productive ecosystems and prey (large and small sized fish; squid, molluscs, shrimp, and plankton).

Cetaceans using these waters (based on sightings) are Humpback dolphins, Finless porpoises, Bottlenose dolphins, Spinner dolphins, pan-tropical spotted dolphins, Striped dolphins, Risso's dolphins, Pilot whales, Killer whales, Sperm whales, Blue whales and Bryde's whales. Other species that have beached live or have been found as carcasses include Rough toothed dolphins, Common dolphins, Cuviers beaked whales, Dwarf sperm whales and false killer whales.

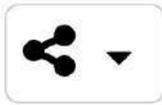
This stretch of wetlands and estuaries entering the Bay of Bengal, needs to be sensitively managed, in terms of infrastructure development and at-sea activities, if resources and biodiversity need to be protected and managed sustainably for future generations. Climate change is surely to bring about drastic events in the future (floods, water-shortage, erosion, loss of fish diversity, loss of habitat for fish and other littoral diversity..etc). We must restore / protect our natural defence systems (such as beaches, wetlands, offshore ridges and trenches) to the effects of climate change.

The presence of mega-fauna is an indicator of healthy ecosystems. The species list of cetaceans using these waters off Kalivelli, Alamparai and Marakkanam is long. It shows that protecting coastal stretches that offer complexities in biological, physical and chemical oceanography is necessary for future well-being of human society.

Thank you, Dipani Sutaria

March 17th 2022

Dipani Sutaria


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Fishing harbour to come up near Kaliveli sanctuary?

The estuary is ecologically contiguous with the Kaliveli wetland ecosystem, of which 5,151 hectares was declared a Wetlands Birds Sanctuary just last week.



Published: 21st December 2021 05:28 AM |

Last Updated: 21st December 2021 05:28 AM



| A+ A A-



A fishing harbour will be set up near Kaliveli wetland, says government



By S V Krishna Chaitanya

Express News Service

CHENNAI: In a contentious decision, Tamil Nadu State Environment Impact Assessment Authority (SEIAA) on November 12 has granted environmental clearance for a modern greenfield fishing harbour in the Edaiyanthittu estuary in Villupuram district. The estuary is ecologically contiguous with the Kaliveli wetland ecosystem, of which 5,151 hectares was declared a Wetlands Birds Sanctuary just last week.

Any large-scale commercial activity in the estuary will directly impact the Kaliveli sanctuary, one of the largest waterfowl congregation sites in TN and a well-known raptor roosting site for species such as the Eastern Imperial Eagle and Red-necked Falcon. The Grey-tailed Tattler, a rare migratory wader, has been spotted only here



migratory wader, has been spotted only here and in Pulicat, in India.

As per the environment clearance, a copy of which is with TNIE, several infrastructural facilities, including action halls and packing halls, will be built near Alamparaikuppam and Azhagankuppam at a cost of Rs 235 crore to handle an estimated fish quantity of 24,000 tonnes per annum.

An area of five hectares of sandbar would be dredged to develop a navigation channel inside the Kaliveli backwaters to dock 110 mechanised boats and 300 motorised boats. To prevent sedimentation of the channel, two training walls are planned on the northern and southern sides of the channel measuring 400 m and 600 m respectively.

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Domain experts said all of this will destroy seagrass meadows, oyster reefs and salt marshes in the area, besides triggering erosion.

'Harbour to harm over 20 small coastal villages'

The fisheries officials, however, claim the harbour will improve the socio-economic status of the fishing communities of Chengalpattu and Villupuram districts. Although they claim no issue was raised in the public hearing meeting, there is massive opposition to the project from small-scale and marginalised fishers. M Ravi, ex-president of Kolathur village panchayat, said once the big fishing vessels are allowed to dock inside the backwaters and begin operations, there will be oil spills and discharge of effluents into the waterbody, which would hamper the productivity of nutrient-rich waters.

Bhavani, a widow fisher woman from



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Edaikazhinadu village said oysters, clams and other shellfish will not grow in polluted waters affecting their livelihood. “Also, if the soil is dredged and the Kaliveli is deepened, we won’t be able to venture into the backwaters.” Saralan, one of the very few graduates from Muttukadu village, alleged that only few big fishing villages like Kadapakkam, Azhangankuppam, and Alamparaikuppam will benefit from the harbour, while over 20 small coastal villages dependent on backwaters will be affected.

“The mechanised and motorised boat fishermen, who already enjoy government subsidies, silenced our voices during the public hearing convened by Tamil Nadu Pollution Control Board last January,” he said. A senior forest official in Villupuram told TNIE that the proposed harbour site falls outside the boundary of the sanctuary’s eco-sensitive zone, but acknowledged that any improper discharge of effluents into the estuary will



affect the sanctuary. **562**

“We are exploring the possibility of declaring Edaiyanthittu estuary as a conservation reserve,” the official said. As per the Fisheries Department submission, the proposed harbour will generate about 30,000 litres of sewage per day and 40 tonnes of biodegradable and 10 tonnes of non-biodegradable solid waste per annum. Although, SEI AA, in its clearance, imposed several conditions to deal with effluents, activists say compliance to norms has been poor in every fishing harbour.

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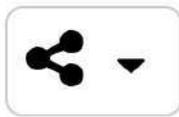
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Twin harbours cement crisis in Kaliveli: Expert

Project launched by fisheries dept poses threat to Olive Ridley nesting ground and bird sanctuary, say environmentalists





Published: 27th February 2022 06:00 AM |

Last Updated: 27th February 2022 10:06 AM



| A+ A A-



Yedayanthittu island, where migratory birds congregate in large numbers. (Photo | Express)

By SV Krishna Chaitanya

Express News Service

VILLUPURAM: The State fisheries department has begun work on the controversial twin fishing harbours inside the Kaliveli estuary bordering Chengalpattu and Villupuram districts. Multiple access roads are being laid on the nesting grounds of Olive Ridley sea turtles to facilitate the movement of men and machinery.



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The pristine white sand beaches on either side of the Kaliveli and Yedayanthittu estuary are frequented by Olive Ridleys for nesting. As on Saturday, community volunteers engaged with turtle conservation said, there were around 120 live nests in Paramankeni, Thaluthaliyur, Panayur Chinna Kuppam, Alamparai and Thandu Mariamman Alamparai beaches and the number is expected to peak in the coming days as the nesting season extends up to April.



Roads being built across the tidal waterbody in preparation for constructing fishing harbour.

TNIE visited Alamparai Kuppam and Azhagan Kuppam, where the twin fishing harbours

were proposed, each ~~566~~ designed to park 110 mechanised boats and 300 motorised boats at a combined cost of Rs 235 crore. Work is going on at a brisk pace. Tonnes of construction debris has been dumped on the Alamparai beach for laying a motorable road to bring boulder stones for the construction of groynes. An area of five hectares of sandbar would be dredged to develop a 100 meters wide navigation channel connecting the Bay of Bengal and the Kaliveli backwaters.

A fisheries department official, who was on the spot supervising the works, told TNIE the road work will be completed within a week and heavy vehicles will be deployed to transport the stones. The fishing harbour at Azhagan Kuppam is coming up near Yedayanthittu island, where migratory birds congregate in large numbers. Here, a road has been already built and a container 'work-station' cabin set up. Red flag posts were erected for about 1 km marking the navigation



channel route, where dredging work will
567
shortly commence.

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A view of a large expanse of Kaliveli backwaters
where two fishing harbours are proposed.

The irony is that the majority of fishermen in the surrounding villages are against the harbour project. Based on the information gathered by TNIE, there are hardly any mechanised vessels in Chengalpattu and Villupuram districts. In Chengalpattu, there are only four vessels and in Villupuram 24.

Athiyar, a motorised boat owner from Kottaikadu, said there is no demand for such large jetties or harbours. The few mechanised vessels are currently using either Kasimedu harbour in Chennai or Puducherry harbour. “The project will displace hundreds of small-scale and marginalised fishers, who depend on abundant fish, oysters, clams and other shellfish. Once the harbours are built, the water will get polluted with oil spills and other discharges,” he said.

Saralan, one of the very few graduates from Muttukadu village, alleged that only a few big fishing villages like Kadapakkam,

Azhangankuppam, and Alamparaikuppam will benefit from the harbour, while over 20 small coastal villages dependent on backwaters will be affected.

However, M Murugesan, executive engineer, Department of Fisheries, claimed there will be no adverse impact on the ecosystem or livelihood of small fishers. “The navigation channel inside the estuary will be just 40 meters wide, while the width of the lake is about 500 meters. There will be a dedicated committee, composed of officials and experts, who will monitor the disposal of waste.

Chances of oil spills are minimal. Besides, we are receiving a lot of applications from the fishermen in the area for tuna longliners and conversion of boats into deepsea vessels for which the government offers 50 per cent subsidy.”

‘Protect bird sanctuary’

The recently declared Kaliveli bird sanctuary is contiguous with the estuary. Both are



connected by a tidal channel. Any pollution in
570
the estuarial waters will cause irreversible
damage to the bird sanctuary, which recorded
one of the highest migratory bird pollution in
the State during the recent bird census carried
out by the State forest department.



"We urge you to take measures to protect
Kaliveli bird sanctuary and its high
biodiversity by increasing its Eco-Sensitive
Zone to include the creek and estuary, since
they are ecologically contiguous and single
hydrological system. We also urge you to
appeal to the fisheries department to relocate
the fishing harbours," said Madras Naturalists'
Society president KV Sudhakar and its
honorary secretary G Vijaya Kumar in the



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letter addressed to Chief Wildlife Warden
Shekhar Kumar Niraj.

The proposed harbours at their present location will block and destroy the connectivity of Kaliveli lake to the ocean, which is bound to affect the food availability for both migrant and resident bird species. Moreover, fuel leaks, oil spills, wash-water, sewage and other effluents from the harbour sites, as mentioned in the EIA, are bound to pollute the Bird Sanctuary, the letter reads.



An aerial view of Yedayanthittu island where large congregations of migratory birds are found.

Also, the nearshore waters off Kaliveli and the



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inshore coastal waters the region host a considerable diversity of whales and dolphins given the complex bathymetry of trenches and canyons close to shore. Some cetaceans recorded year around (resident populations), live or stranded, include Indo-Pacific Humpback Dolphin, Finless Porpoise, Spinner Dolphin, Pan-tropical Spotted Dolphin, Bottlenose Dolphin, Blue Whale, Bryde's Whale and Sperm Whale.

The presence of Sperm Whales has been reported by local people, and the area is perceived to be an important calving ground for these species. All of these species are Schedule I species and facing different levels of threat on the IUCN Red List.

The presence of mechanised fishing will threaten cetacean populations causing death due to bycatch and ship strikes. While the Bird Sanctuary is a rich habitat, so is the creek and estuary of Kaliveli where the project is proposed. 163 species of birds have been



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recorded at the Kaliveli estuary as compared to the low number of 49 species stated in the EIA, of which several are Near Threatened, or come under the Convention of the Conservation of Migratory species.

"Birds like the Whiskered Terns, Northern Pintail, Little Stint and others have been recorded in their thousands during Asian Waterfowl Censuses. This is also the location where the threatened Grey Tailed Tattler is sighted commonly, the only other place in Tamil Nadu other than Pulicat," said bird expert M Yuvan.

He said the 5,151.60 hectares Kaliveli bird sanctuary was declared after the studies for the proposed harbours were conducted.

Therefore, new studies by qualified ecological scientists are required to investigate their impact on the sanctuary and its wildlife.



The New Indian Express, Tamil Nadu, India

In Tamil Nadu, a Proposed Harbor Construction puts Livelihoods and the Ecosystem at Risk

NA | 07 September 2021

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The Kaliveli lagoon — and the small-scale and marginalized fishers who eke out a living from its waters — are threatened by development plans that will benefit big fishing vessels.

D Revathi (50), a widow from Muttukadu village in Villupuram district, drives into Kaliveli lake backwaters every day at 5.30 am and spends the next eight hours in neck-deep water handpicking and shucking oysters, clams and mussels. This has been her daily ritual for the last 30 years ever since she lost her husband. Left to raise three young children all alone, Revathi found solace in fishing for daily subsistence. Though the work is grueling and low paying, fetching her a paltry Rs 150-200 per day on average, Revathi has no complaints.

“My husband died when my youngest daughter was one year old. Since then, Kaliveli backwaters have been my only source of income. During summer months, when the water level is low, I handpick different varieties of shellfish and during monsoon months I bag prawns, crabs and small fish. I do not know any other work except this,” Revathi told *The New Indian Express*.



Fisherwoman collecting oysters and clams from the backwaters. Nearly 1,000 women from 20 odd villages depend on these backwaters from survival / Credit: Debadatta Mallick.

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She is not alone. There are at least 12,000 fisherwomen, including a large number of widows, from over 20 villages in Chengalpattu and Villupuram districts who are engaged in traditional fishing in Kaliveli lagoon. At any given time, there will be at least 200-300 'super moms' in the water busy collecting shellfish. They just wear a pair of socks and gloves for protection, use a sickle knife to craftily open the shells and carry a small bamboo basket as a backpack to collect the harvest.

But their livelihoods are at stake. The Tamil Nadu state government has proposed a modern greenfield fishing harbor with a capacity of 12,000 tons per annum inside the Kaliveli backwaters, South India's second largest brackish-water lake located in Villupuram district. Biologists say this would disrupt the ecology in what is believed to be the last surviving clean backwaters on the east coast. The fishing harbor is expected to have several supportive amenities such as auction halls and a landing center.

The Coastal Regulation Zone (CRZ) clearance application submitted by the fisheries department before the State Coastal Zone Management Authority (TNSCZMA) and reviewed by *The New Indian Express*, reveals that a navigation channel has been proposed to create a permanent approach channel for the fishing vessels through the backwaters.

This would be achieved by clearing the sandbar between the Kaliveli waters and the sea. An area of five hectares of sandbar would be dredged to maintain a water depth of 2.5m lower than the current levels. As part of the proposed harbor construction, a navigation basin is proposed within the backwaters. To prevent sedimentation of the navigation channel, two training walls are planned on the northern and southern sides of the channel measuring 400m and 600m respectively.



The vast salt pans in the upstream of Kaliveli lake backwaters are likely to get affected if the proposed fishing harbor is built and pollutes the water, rendering it unfit for salt production / Credit: Debadatta Mallick.

All these infrastructure developments would disrupt the livelihood of small-scale and marginalized fishers in the area while benefiting large-scale fishing operations. M Ravi, former president of Kolathur village panchayat, said once the big fishing vessels are allowed to dock inside the backwaters, there will be oil spills and discharge of effluents into the pristine waterbody which would hamper the productivity of nutrient-rich waters. “The part of Kaliveli that is connected to the sea by the Yedayanthittu estuary from which there is considerable intake of seawater, is the source for a vast area of salt pans. The salt industry here is the third-largest in the state, providing employment to thousands of people. If Kaliveli waters are polluted, it will bring down the salt industry as well.”

Saralan, one of the few graduates from Muttukadu village, alleged that only a few big fishing villages like Azhangankuppam, Alamparaikuppam and Kadapakkam will be benefited by the harbor. “But it will adversely affect over 20 small coastal villages that are dependent on backwaters. The mechanized and motorized boat fishermen, who already enjoy subsidies from the government, threatened and silenced our voices during the public hearing convened by the Tamil Nadu Pollution Control Board (TNPCB) in January last year,” he said.

When contacted, an assistant director of the fisheries department told the *Express* that due to increased fish catch in Chengalpattu and Villupuram, there is an urgency to develop a fishing harbor. “The lack of fishery infrastructure in either district is leading to significant transport of fish from

here to Chennai or Puducherry, causing overcrowding and overloading of fish catch, which in turn results in low-quality fish production. An establishment of a well-structured fishing harbor with sufficient supporting facilities would ease the burden on other fishing harbors,” the official said.

It would also lead to good quality and hygienic fish availability in the markets. But to achieve this, a lot of construction work must be undertaken in the ecologically sensitive area.

Priya Davidar, a conservation biologist, said, “It is an Important Bird Area (IBA), identified by the International Union for Conservation of Nature (IUCN) and the National Wetland Conservation and Management Programme. So, building a harbor inside this region is nothing but a call for disaster. The government can easily build the harbor on the seafront instead of disturbing backwaters, like how the Kasimedu harbor was built.”



Kaliveli is a bird paradise with thousands of migratory birds flocking the place during winter / Credit: Debadatta Mallick.

The biodiversity-rich waters of Kaliveli lagoon, which is the second-largest brackish water body in southern India after Pulicat lake, has been the traditional fishing ground for folk who use non-motorized country boats. Around 65,000 people, mostly from marginalized communities like Adi Davidar, Scheduled Castes and Scheduled Tribes, are dependent on this lagoon for their livelihoods.

The ecological significance of the area is evident as earlier this year, the Villupuram administration issued a first declaration under the Wildlife Protection Act, 1972 to declare Kaliveli wetlands a bird sanctuary.

M Yuvan, an active member of the Madras Naturalists Society, told *Express* that Kaliveli wetlands were one of the largest waterfowl congregation sites in Tamil Nadu, and a well-known raptor roosting site for species like the Eastern Imperial Eagle, Greater Spotted Eagle, Red-necked Falcon and several harriers. "The area hosts over 30,000 ducks, 20,000 to 40,000 migratory shorebirds and 20,000 to 50,000 terns in the winter. The Grey-tailed Tattler, a rare migratory wader, has been recorded only here and in the Pulicat across the country," he said.

Moreover, environmentalists noted that north of the proposed fishing harbor site is the 17th-century Alamparai Fort built during the Mughal era at Kadapakkam. Alamparai, a flourishing place of trade, fell into oblivion when the British Army led by Sir Thomas Eyre Coote captured the fort in 1760 and reduced it to ruins. Now, the State archaeology department has taken up the task of renovating the fort. Coastal engineers say the training walls of the proposed harbor may trigger erosion near the Alamparai fort.



The 17th century Alamparai fort on the shores of Kaliveli backwaters, which is currently being restored by the State archeology department / Credit. Debadatta Mallick.

State archaeology department deputy director K Sivanathan said that according to rules, the area 100 meters from the fort is a 'no development zone' and areas 100 to 300 meters from the fort are regulated, where only certain kinds of activities are permitted. "They may have to obtain a no-objection certificate from the archaeology department before commencing work. I will also check on the exact location of the proposed harbor," he added.

CRZ clearance, EIA report flawed

The fisheries department has committed glaring errors in obtaining Coastal Regulation Zone (CRZ) clearance and in the preparation of the Environment Impact Assessment (EIA) report for the project. As per the EIA Notification, 2006, the preparation of Terms of Reference (ToR) is a mandatory prerequisite for the commencement of the preparation of the EIA report. The official documents, accessed by *Express*, reveal that the State Environment Impact Assessment Authority issued the ToR on October 17, 2020, while the EIA report was already completed on June 4 that year, which was in fact used to conduct a public hearing in 2021.

A closer analysis reveals that the Rapid EIA report prepared prior to issuance of the ToR was copy-pasted and produced as the final EIA report, which is a clear violation of EIA Notification.

Environmentalism and fisherfolk rights activist K Saravanan said that this activity was fraudulent. “The EIA report is riddled with significant errors and is inconsistent with the ToR. The preparation of EIA report before the ToR was issued is sufficient cause in itself to cancel the issuance of CRZ clearance by the State authority.”

When contacted, Environment Secretary Supriya Sahu said she was not aware of the project and would look into the matter.



A fisherman engaged in traditional net fishing using a country raft / Credit: Debadatta Mallick.

This story was produced with the support of Internews' Earth Journalism Network. It was originally published by The New Indian Express along with a supporting story on 2 August 2021 and has been lightly edited for length and clarity.

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Banner image: A woman looking for shrimp in Kaliveli / Credit: Debadatta Mallick.

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THIS STORY IS FROM JANUARY 31, 2016

Carcass of Indo-Pacific humpback dolphin washed ashore near Chennai

CITY / P Oppili / Updated: Jan 31, 2016, 13:34 IST

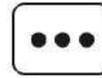


SYNOPSIS

The carcass of an Indo-Pacific humpback dolphin was washed ashore at Alambarai Kuppam near Marakkanam, around 100km from Chennai.

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CHENNAI: The carcass of an Indo-Pacific humpback dolphin was washed ashore at Alambarai Kuppam near Marakkanam, around 100km from Chennai.

Volunteers of the Marine Mammal Stranding and Rescue Team spotted the carcass on Saturday.

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Leader of the team Supraja Dharini said the dolphin had 60 teeth on the upper jaw and

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Leader of the team Saja Dharini said the dolphin had 60 teeth on the upper jaw and 58 on the lower jaw, which helped in identifying the species.

The carcass was 252cm long and weighed over 200 kg. The dolphin's flippers were 32cm long and 15cm wide. Dorsal fin was 37cm long and 32cm wide.

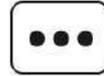
Many cut marks were seen on the posterior ventral side and the death could have been caused due to entanglement in a net. Ma deep injuries were also found around its snout and the neck, she said.



The carcass was buried on the Alambarai Kuppam shore.

These dolphins are inhabitants of tropical to warm temperate coastal water and they also enter rivers, estuarine areas and mangroves. Groups, numbering less than 10, move together and they prefer sandy bays for

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These dolphins are inhabitants of tropical to warm temperate coastal water and they also enter rivers, estuarine areas and mangroves. Groups, numbering less than 10, move together and they prefer sandy bays for resting and socializing. They use the open rocky coastline for foraging.

Slow swimmers, these dolphins are known to patrol parallel to the shore at a speed of 4.8 kmph. They display an unusual diving posture – lifting its snout first out of the water, arching its back and then pausing before dipping below the surface or flipping its tail to dive.



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Young Risso's dolphin washes ashore dead

CITY / Jan 23, 2016, 06:53 IST



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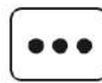
A baby Risso's dolphin was washed ashore near Alambarakuppam village near Marakkanam on Friday. Volunteers of TREE Foundation got an alert from the locals and found

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CHENNAI: A baby Risso's dolphin was washed ashore in Alambarakuppam village near Marakkanam on Friday. Volunteers of TREE Foundation got an alert from the locals and found it dead. They measured the carcass and buried it. Supraja Dharini of TREE Foundation said the species identified with a furrow on its forehead is the most striking feature of Risso's.

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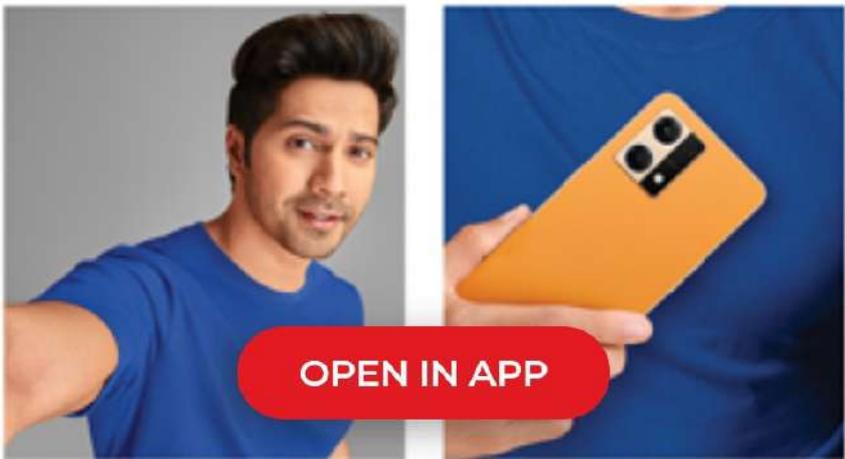


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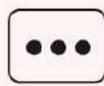
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The beached dolphin had a few teeth in the front of the lower jaw, and none in the upper jaw, suggesting that it was a calf, she said.

The dolphin measured 142cm long, 96 cm wide and weighed 20kg. One of the flippers measured 32cm, with a dorsal fin of 28cm. A few deep cut injuries were noticed near the blow hole, which could have been caused by entanglement in a net, she said.

These species of dolphins are widely distributed. They are inhabitants of deep oceanic and continental slope waters from tropic through temperate regions. The adults are often seen surfacing slowly. They mainly feed on crustaceans.

As the carcass would attract scavenging birds and mammals like stray dogs, after external examination the team buried it 30m above high tide line as a sign of respect, Dharini said.



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Indian Ocean Turtle Newsletter – Issue 10

OLIVE RIDLEY TURTLE CONSERVATION ACTIVITIES ALONG THE NAGAPATTINAM COAST, TAMIL NADU, INDIA

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Download article as PDF (<https://www.iotn.org/wp-content/uploads/2015/12/10-4-OLIVE-RIDLEY-TURTLE-CONSERVATION-ACTIVITIES-ALONG-THE-NAGAPATTINAM-COAST-TAMIL-NADU-INDIA.pdf>)

Introduction

Nagapattinam district in Tamil Nadu has a coastline of 161 km. Coastal characteristics vary along this stretch. For example, the 40 km coastal stretch from Point Calimere to Voimedu is primarily swampy and there are no sandy beaches. Northwards from Point Calimere up to Kollidam, a distance of 120 km, the stretch is predominantly sandy with a few swampy patches in Thirumullaivasal and Palaiyar. Results of surveys carried out reveal that sporadic nesting of olive ridley turtles occurs in the sandy stretches along this coastline from Point Calimere in the south up to Chennai in the north during the nesting season between December and March. The Government of India through its Ministry of Environment and Forests and the Wetland and Wildlife Management Division funds various olive ridley conservation projects every year along this coast. A description of various activities carried out along the Nagapattinam coast is given below.

Establishment of Olive Ridley Protection Camps:

Every year Olive Ridley Protection Camps are established in important nesting sites during the nesting season from December to March. Two 'protection watchers' are stationed at each of these camps and the camps are equipped with tents, cots, torches and other accessories (Figure 1). The camps are set up for the following purposes:

- To protect nesting sites and nests from disturbance by humans and animals,
- To protect the eggs from illegal take for consumption by humans,
- To protect the eggs and hatchlings from predation by domestic and wild animals, and
- For collection of eggs and translocation to hatcheries.



(<https://www.iotn.org/wp-content/uploads/2015/12/10-4-1.jpg>)

Figure 1: An olive ridley protection camp with 'Protection Watchers' at Nagapattinam, Tamil Nadu.

Photo: V. Thirunavukarasu, 2008.

Watchers in these camps are on duty round the clock and ensure protection to turtles that visit these sites. During the 2009 nesting season, nine such protection camps were established. The locations of the camps were selected based on established records and local knowledge of fishermen. The camps were set up in the following locations (Figure 2):

1. Point Calimere
2. Keechan Odai
3. Manian Theevu
4. Arukatuthurai
5. Pushpavanam
6. Tharangambadi
7. Vanagiri
8. Koolaiyar
9. Madavamedu

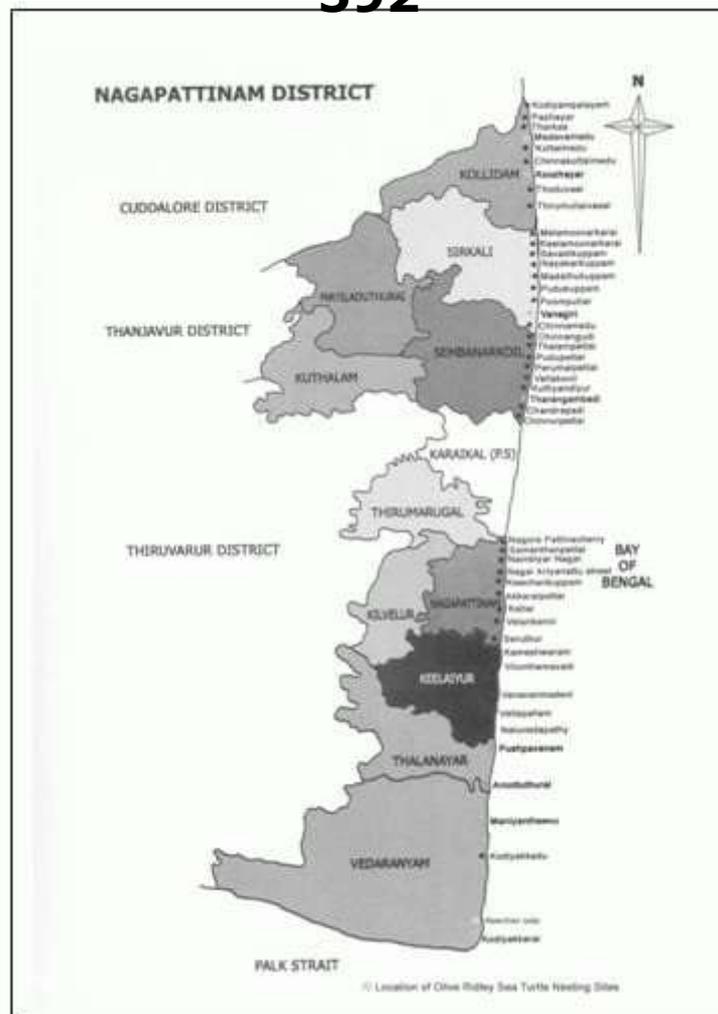


Figure 2: Location of olive ridley turtle nesting sites in Nagapattinam
 Courtesy: Asst. Director, Survey and Settlements, Nagapattinam

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Turtle egg collection and hatchery management:

The turtle watchers perambulate the coast for a distance of 5-8 km on both sides of the protection camp and are trained to collect turtle eggs. The collected eggs are immediately translocated to a hatchery for incubation. During the 2009 nesting season, hatcheries were established in five important sites:

1. Point Calimere
2. Tharangambadi
3. Vanagiri
4. Koolaiyar
5. Madavamedu

The collected eggs are incubated for 45-52 days and after the hatchlings emerge, they are released safely back into the sea. This activity has been carried out for the last four years. The details of eggs collected and hatching success is given in the table below (Table 1).

Table 1. Collection of eggs and hatching success during 2005 – 2009

Sl. No.	Year	No. of eggs collected	No. of eggs hatched	No. of young ones
1.	2005-06	680	452	452
2.	2006-07	487	292	292
3.	2007-08	1755	1149	1149
4.	2008-09	5224	5100	5100

Olive ridley turtle nesting site management:**Figure 3:** An olive ridley turtle hatchery in Nagapattinam
Photos: V. Thirunavukarasu, 2008.

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The tsunami that struck the coast in December 2004 left more than 6500 people dead along the Nagapattinam coast alone and caused enormous damage to property. Many post-tsunami assessment studies claimed that the existing coastal shelterbelt plantations and bio-shields had protected life and property in certain areas. Hence, large scale coastal afforestation activities were carried out from 2005 onwards by raising coastal shelterbelt plantations with *Casuarina equisetifolia*. Later however, it was found that some of the trees, having been planted near the high tide line, were hindering the movement of the olive ridley turtles that had come ashore to nest. In October 2008, three important nesting locations were identified and the grown up *Casuarina equisetifolia* trees were removed to facilitate turtle nesting. A minimum distance of 25 m from the high tide line was ensured for turtle nesting. The details of this activity are given below (Table 2):

Table 2. Details of removal of *Casuarina equisetifolia* from the three important nesting sites

Sl. No.	Name of the location	No. of trees removed
1.	Arukatuthurai	48
2.	Pushpavanam	61
3.	Naluvadapathi	204

(<https://www.iotn.org/wp-content/uploads/2015/12/10-4-4.jpg>)

Awareness activities:

The Tamil Nadu Forest Department has produced a VCD on olive ridley turtles which has been put up for sale at the Point Calimere Wildlife Sanctuary. This VCD has also been screened on many occasions to school and college students, fisherfolk and tourists, as part of the State Forest Department's conservation awareness and education activities.

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2,200 Olive Ridley hatchlings released into sea off Mayiladuthurai

Published: 📅 Mar 30,2022 ⌚ 02:27 AM

Updated: 📅 Mar 30,2022 ⌚ 01:03 PM

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Accordingly, the eggs of the turtles in Mayiladuthurai district were collected and preserved in as many as 266 nests in Koozhayar, Kottaimedu and Vanagiri hatcheries. Of the 31,764 eggs collected so far, 15,572 have hatched and the young ones were released into the sea.

More than 700 Olive Ridley turtles were let in to the sea in Chennai



596

Thiruchirapalli: Officials of the Forest Department released 2,200 Olive Ridley hatchlings into the sea near Sirkazhi in Mayiladuthurai district on Tuesday.

According to wildlife officials, the endangered marine species of Olive Ridley turtles use to lay eggs along the coastline across Tamil Nadu from December to March and they used to be preyed upon by other animals. So, the department has been creating awareness among the people, especially fisherfolks, to support the officials in collecting and protecting the eggs.

Accordingly, the eggs of the turtles in Mayiladuthurai district were collected and preserved in as many as 266 nests in Koozhayar, Kottaimedu and Vanagiri hatcheries. Of the 31,764 eggs collected so far, 15,572 have hatched and the young ones were released into the sea.

On Tuesday, as many as 2,200 hatchlings were released into the sea by forest officials in the presence of Collector R Lalitha, Sirkazhi MLA M Panneer Selvam and Forest Ranger Joseph Daniel.

The Collector urged the officials to advise fishermen to avoid fishing till five km from the shore during the period when these hatchlings are released. Wildlife officials said that the propellers of the motor boats hit the Olive Ridley turtles when they moved towards the coast for nesting.

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SILAS, E.G. (1984a) In: E.G. Silas (Eds.). Proceedings of the workshop on sea turtle conservation. *Central Marine Fisheries Research Institute, Special Publication # 18*. Cochin.

SILAS, E.G. (1984b) Observation of turtles at Sea and in the Lakshadweep. *Sea turtle Research & Conservation, Bull. Central Marine Fisheries Research Institute*, 35: 59 – 61.

Beach Armouring in Lakshadweep



Status of Sea Turtles along the Tamil Nadu Coast, India

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Email: sb62in@yahoo.co.uk

Introduction

All five species of sea turtles, leatherback (*Dermochelys coriacea*), olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*) and green turtle (*Chelonia mydas*), found within Indian limits are reported along the Tamil Nadu coast (Kar and Bhaskar 1982). Barring the loggerhead, all the other species are reported to nest along the coast of this state. Several institutions such as the State Forest Department, Central Marine Fisheries Research Institute (CMFRI), Madras Snake Park Trust (MSPT) and Student's Sea Turtle Conservation Network (SSTCN) have been involved in sea turtle conservation in this part of the country (Valliappan and Whitaker 1974, Whitaker 1977, Agastheesapillai and Thiagarajan 1979, Bhaskar 1981, Silas and Rajagopalan 1984, Shanker 1995, Rajagopalan *et al.*

1996). The Chennai (Madras) coast is being monitored annually by SSTCN since 1988 (K. Shanker, pers. comm.).

Sea turtles are reportedly declining all over the world due to habitat loss, mortality due to unscientific fishing practices and exploitation for food (Limpus 1995). Mortality of thousands of olive ridleys has been reported in the mass nesting areas due to incidental catch in the fishing gear (Pandav *et al.* 1998). Mortality in the breeding ground will lead to severe population decline as matured individuals are eliminated forever. Also, sea turtles require several years to attain sexual maturity. In addition, they are also exploited by humans for meat and eggs all over their range. Available information on the sea turtles along the entire coast of the country is largely anecdotal, and is restricted with respect to area or time. In this background, the Ministry of

Environment and Forests, Government of India initiated the GOI-UNDP-WII Sea Turtle Conservation Project covering all maritime states of the country to determine the status of sea turtles along the entire coastline. As a part of this project, the Salim Ali Centre for Ornithology and Natural History (SACON) has conducted field surveys along the Tamil Nadu coast from November 2000 to May 2001. In the present paper we report the status of sea turtles along the Tamil Nadu coast, and propose measures for conserving them.

Field methods

- Tamil Nadu, with 980 km coastline has both east (900 km) and west (80 km) coasts (Fig 1). Methods followed for data collection are given below.
- A preliminary survey was conducted along the entire Tamil Nadu coast during November-December 2000 recording coastline characteristics such as sand, rock, mangrove and swamp at every 10-15 km. Sandy beaches were considered suitable for sea turtle nesting, and rock, swamps and development activities as unsuitable for the same.
- Based on the preliminary surveys, locations for intensive studies were short-listed. Fortnightly monitoring of beaches during the olive ridley nesting season (December-April) were done along the Nagapattinam, Rameswaram and Tiruchendur - Kanniyakumari coasts.

- In addition, a co-ordinated survey was done from January 20 to February 20, 2001 covering most parts of the Tamil Nadu coast to assess the overall sea turtle nesting.
- Field survey started at 0500 hrs continued up to 0800 hrs. On an average, 10 km was covered in a day. Information on the nest predation, mortality of turtles and reasons for the death were recorded. Select village markets were monitored to quantify exploitation of sea turtles by local people.

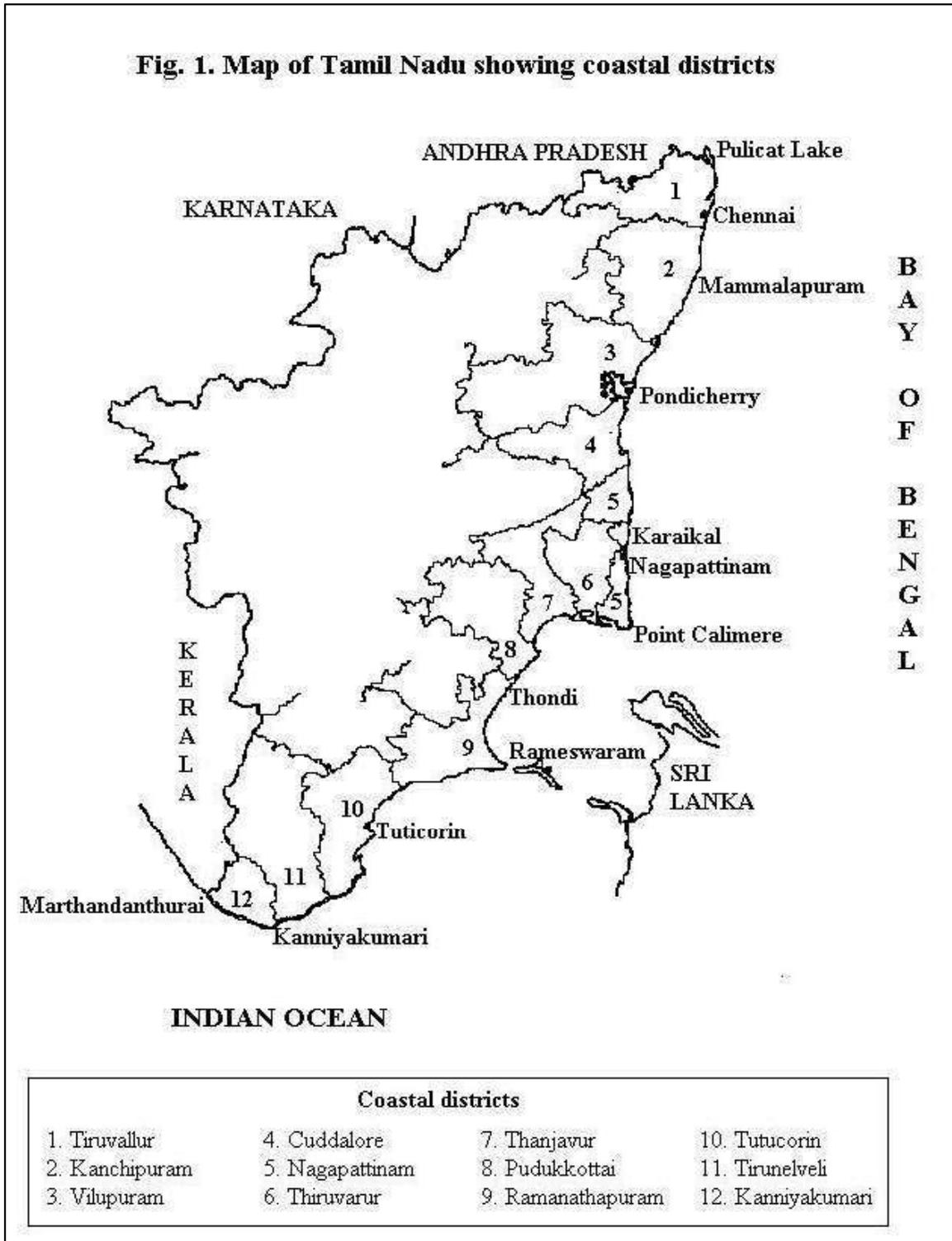
Results and discussion

Status of Tamil Nadu coast - Of the 980 km shore, about 821 km was surveyed during the preliminary study which include 79 localities. About 530 km (65%) of the coast had sandy beaches, and are assumed to be suitable for sea turtle nesting (Table 1). Human habitations and related development activities, and rock and swamps occupied the remaining portion of the coast. Even though a majority of the west coast and east coast along Kanniyakumari-Tiruchendur were sandy, the area was highly disturbed due to sand mining. Sea walls built to protect the land from sea erosion provided no space for nesting in parts of the west coast. Also, the interface between the sea and human habitation was minimal (<5 m) in parts of this sector.

Table 1. Beach characteristics of Tamil Nadu with reference to sea turtle nesting

Coastal sector	Sampled (km)	Nesting suitability		Unsuitable beach for nesting		
		Suitable	Unsuitable	Rocky	Development	Swamp
West Coast	63	50	13	10	3	0
Kanniyakumari- Tiruchendur	78	72	6	4	2	0
Tiruchendur- Tuticorin	41	30	11	0	11	0
Tuticorin- Mandapam	114	102	12	12	0	0
Rameswaram Island	38	15	23	8	15	0
Mandapam- Thondi	69	36	33	0	0	33
Thondi-Athirampatinam	80	15	65	0	5	60
Athirampatinam- Nagapatinam	107	44	63	0	13	50
Nagapatinam-Cuddalore	90	60	30	1	14	15
Pondicherry - Chennai	141	110	31	1	30	0
Total	821	534	287	36	93	158

Fig. 1. Map of Tamil Nadu showing coastal districts



Composition of turtles - The composition and abundance of turtles were based on number of nests, dead turtles observed on the beach, and in select village markets. Totally, 516 observations of five species were made during this study. The most common species was the olive ridley followed by the green turtle. The turtle composition of the Gulf of Mannar and Nagapattinam was different. Along the coast of Nagapattinam, olive ridleys and green turtles were observed, of which the former constituted 98.1%. In the Gulf of Mannar, olive ridleys (59.6%) and green turtles (35.2%) together constituted 94.8%, while the other three species were rare and constituted only 5.2% of the total.

Nesting - The olive ridley does not show any pattern with respect to their arrival and departure for nesting along the Kanniyakumari coast and Gulf of Mannar. However, along the Nagapattinam coast, turtles emerged for nesting during the second half of December and continued up to first half of April with the peak during the second half of February

(Table 2). An estimated 1080 nests (22/ km) were seen in the 50 km of this coast (Table 2). In other areas, such as Rameswaram and Kudankulam-Tiruchendur (Gulf of Mannar), it was about 1 and 3 nests/km respectively. It appears that the Gulf of Mannar is largely a feeding ground for turtles rather than a nesting area.

Co-ordinated sampling along the entire coast during 20 January – 20 February 2001 showed that turtles nested comparatively higher north of Point Calimere up to Chennai. The estimated frequency of nesting in this sector varied from 0 to 11 nests /km (Table 3). Important areas of turtle nesting are coastline between Tranquebar – Pazhaiyar (Nagapattinam district) and Pondicherry – Chennai.

Both rapid and intensive surveys showed that the nesting of olive ridleys along the Tamil Nadu coast is sporadic, and the estimated number of nests is 2500-4000/ season.

Table 2. Fortnightly nesting of the olive ridley along select sectors of Tamil Nadu

Month & Fortnight	Nagapattinam (50 km)		Rameswaram (15 km)		Kanniyakumari-Tiruchendur (70 km)	
	Nest	Nest/day/10 km	Nest	Nest/day/10 km	Nest	Nest/day/ 10 km
December I	1	0.2	0	0	0	0
December II	3	0.6	0	0	4	0.6
January I	1	0.2	1	0.5	1	0.1
January II	6	1.2	0	0	0	0
February I	3	0.6	0	0	4	0.6
February II	28	5.6	0	0	4	0.6
March I	14	2.8	0	0	1	0.1
March II	15	3	0	0	0	0
April I	1	0.2	0	0	0	0
April II	0	0	0	0	0	0
Total	72	14.4	1	0.5	14	2
Estimated nest	1080		11		210	
Nest/km	22.6		1.0		3.0	

Table 3. Sea turtle nesting along various sectors of the Tamil Nadu during January-February 2001; Distance sampled per day=10 km, Higher nesting was assumed to occur for 30 days during the peak season

Coastal sector	Distance (Km)	Survey days	Nests	Nests/ night/ 10 km	Estimated nest/ 30 days	Nest/ km
Kanniyakumari-Thiruchendur	80	8	4	0.5	120	1.5
Thiruchendur- Mandapam	60	6	1	0.17	30	0.50
Rameswaram	15	1.5	1	0.67	30	2
Mandapam- Thondi	30	3	0	0	0	0
Point Calimere-Nagapattinam	30	3	4	1.33	120	4
Tranquebar-Pazhaiyar	50	5	18	3.6	540	11
Pondi-Mamallapuram	60	6	7	1.17	210	3.5
Mamallapuram-Chennai	40	4	13	3.25	390	9.8
Total	365	36.5	48	10.69	1440	

Overall nesting intensity in the sampled areas = 4/km

Nest estimate for all over Tamil Nadu coast (980 km) = 3920 nests

Nest estimate for suitable nesting area (637 km or 65%) = 2548 nests

Mortality - A total of 462 dead turtles was observed during this study. Higher number of dead turtles were observed along the Nagapattinam coast (4.5 turtles/ km). Rapid surveys showed that turtle mortality was also high along the Chennai and Pazhayar coasts (Table 4). Incidental catch in the

fishing nets and mechanical injury and exploitation for food are major reasons for turtle mortality. The incidental catch in the fishing gears is wide spread along the Tamil Nadu coast, whereas the exploitation is restricted to the southern parts.

Table 4. Mortality of turtles along select coastline sectors of Tamil Nadu from November 2000 to April 2001

Species	Kanniyakumari-Tuticorin	Mandapam	Nagapattinam	Chennai*	Total
Olive ridley	64 (59)	36 (6)	239	38	377
Loggerhead	0	4 (2)	0	0	4
Green turtle	55 (52)	13 (3)	6	0	74
Hawksbill	2 (2)	2 (0)	0	1	5
Leatherback	1 (1)	1 (0)	0	0	2
Total	122 (114)	56 (11)	245	39	462

* one survey only; No. in paranthesis is number of turtles exploited by locals

Incidental catch - Gill nets are widely used for marine fishing along the Tamil Nadu coast. Of the 245 dead turtles found on Nagapattinam coast, 94 were fresh. Among them, 66 had visible injuries. The head or one of the flippers was missing in eight of them. When turtles get entangled in fishing nets and are found alive, the fishermen chop off their flippers or club the head to remove them from net without damaging the net or themselves. This is common along the Nagapattinam and Chennai coasts. In the southern parts, live turtles are

collected and consumed, and dead turtles discarded in the sea. A higher number of fishing vessels operate in south Tamil Nadu compared to the northern parts i.e. Nagapattinam coast. However, the registered number of vessels are very low compared to the number seen in the field (Table 5). For instance, according to the Fisheries department, there are 1278 fishing vessels registered in the Nagapattinam district. However, interviews and counting in 11 villages show at least 2110 vessels.

Table 5. Statistics of fishing gears in major coastal districts of Tamil Nadu

Statistics	Tuticorin	Ramanathapuram	Nagapattinam
Mehanised boat	361	5973	1278 (2110)
Non- mehanised boat	2617	786	-
No. of Catamaran	1516	-	-
Number of fishing villages	25	149	42
Vessels/fishing village	180	46	30 (192)

Source: Tamil Nadu Fisheries Department; No. in parenthesis is figures obtained based on counts in 11 coastal villages in Nagapattinam district.

Exploitation - The present study showed that turtles were regularly exploited for food along the southern districts especially south of Tuticorin (Table 4). Mandapam is a part of the Gulf of Mannar Biosphere Reserve, and the presence of field staff of the wildlife wing of the Tamil Nadu Forest Department deterred the fishermen from catching turtles. The locals of this area are aware of the Wild Life (Protection Act) 1972, and punishment for hunting wildlife, especially sea turtles. The olive ridley and green turtles were commonly exploited species. Barring protected areas such as Point Calimere Wildlife Sanctuary and Gulf of Mannar Biosphere Reserve, turtle eggs were collected from all over the Tamil Nadu coast. Eggs are consumed by the locals, and about 95.4% (n=87) of depredated nests were stolen by human.

Olive ridley migration - The Wildlife Institute of India (WII), Dehradun had marked about 6800 turtles with monel metal tags along the Gahirmatha, Rushikulya and Devi coasts, Orissa during 1997-99. Two tags were recovered from Kanniyakumari area, the southern tip of the Indian peninsula. The turtle bearing tag WR 26135 was a female and was tagged during the nesting in Rushikulya rookery on 22.03.1998 (Pandav, pers. comm.). The fishermen near Kanniyakumari collected the tag from a dead turtle during mid June 2000 while fishing in the Indian Ocean near their village. This recovery is during the non-breeding season, 27 months after it was tagged at Rushikulya, Orissa. The turtle bearing tag WG 14805, also a female, was marked on 6.1.1999 near Gahirmatha while mating (Pandav, pers. comm.). This and five more turtles were found dead in a gill net during mid November 2000 north of Kanniyakumari (in Bay of Bengal). This tag recovery coincided with the beginning of migration

to the nesting ground. This recovery is about 22 months after it was marked at Gahirmatha. These recoveries confirm the migration of olive ridley from the southern Bay of Bengal and Indian Ocean to the Orissa coast for nesting.

Suggestions for sea turtle conservation

Important measures for sea turtle conservation in Tamil Nadu are given below.

- Subsistence exploitation of sea turtles exists in the southern districts. Exploitation control is suggested as the Gulf of Mannar forms a part of the foraging and nursery ground for turtles, and exploitation in this area would have serious impact on the long term survival of turtles. Intensive beach patrolling by the Forest Department during February and March may reduce egg poaching, and would help in recruitment.
- Live turtles entangled in the fishing nets are beaten (to death?) especially along the Nagapattinam-Chennai coast. Awareness programmes to obtain voluntary support from the local fishing communities for the safe release of turtles and protection of eggs is necessary. This programme should include demonstration of appropriate techniques for removing entangled turtles.
- Regular monitoring and tagging of sea turtles in the Gulf of Mannar, Nagapattinam and Chennai coast would provide further insights on the migration of olive ridleys. Information on the trend in population, nesting intensity and poaching are also important for planning

conservation measures.

- Development of resource personnel is important for long term conservation of a species or ecosystem. Training programmes and workshops may be organised especially for the benefit of field officers of the Forest and Fisheries Departments. Resource persons may also be developed at local levels involving stake holders such as government departments, fishing community, students and research organisations.

Tamil Nadu should be given higher priority in sea turtle conservation programmes as it harbours all

References

AGASTHEESAPILLAI, A. & R. THIAGARAJAN (1979). Biology of the green turtle *Chelonia mydas* (Linnaeus) in the Gulf of Mannar and Palk Bay. *J. mar. biol. Ass. India* 21 (1&2): 45-60.

BHASKAR, S. (1981). Sea turtle survey of southern Tamil Nadu. Report to the World Wide Fund - India.

KAR, C.S. & S. BHASKAR (1982). Status of sea turtles in the Eastern Indian Ocean. In: Biology and conservation of sea turtles. K.A. Bjorndal (ed). Smithsonian Institution Press, Washington D.C.: 356-372.

LIMPUS, C. J. (1995). Global overview of the status of marine turtles: A 1995 viewpoint, in: *Biology and conservation of sea turtles*. K.A. Bjorndal (ed). Smithsonian Institution Press, Washington DC: 605-609.

PANDAV, B., B.C. CHOUDHURY & K. SHANKER (1998). The olive ridley sea turtle (*Lepidochelys olivacea*) in Orissa: An urgent call

five species, and holds both breeding and foraging areas of major turtle species.

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for an intensive and integrated conservation programme. *Current Science* 75 (12) : 1323 - 1328.

RAJAGOPALAN, M., S. VIVEKANANDAN, S. KRISHNA PILLAI, M.SRINATH & A. B. FERNANDO (1996). Incidental catch of sea turtles in India. *Mar. Fish. Info. Ser.* 8-15.

SHANKER, K. (1995). Conservation of sea turtles on the Madras coast. *Marine Turtle Newsletter* 64:3-6.

SILAS, E.G. & M. RAJAGOPALAN (1984). Recovery Programme for olive ridley *Lepidochelys olivacea* (Eschscholtz, 1829) along the Madras coast. *Bull. Cent. mar. fish. Res. Inst.* 35: 9-21.

VALLIAPPAN, S. & R. WHITAKER (1974). Olive ridleys on the Coromandel coast. Madras Snake Park Trust, Madras. 10p.

WHITAKER, R. (1977). A note on sea turtles of Madras. *Indian Forester* 103(11): 733-734.

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Olive ridley turtle nesting season begins in Gulf of Mannar

M K Ananth / TNN / Updated: Jan 28, 2022, 17:54 IST

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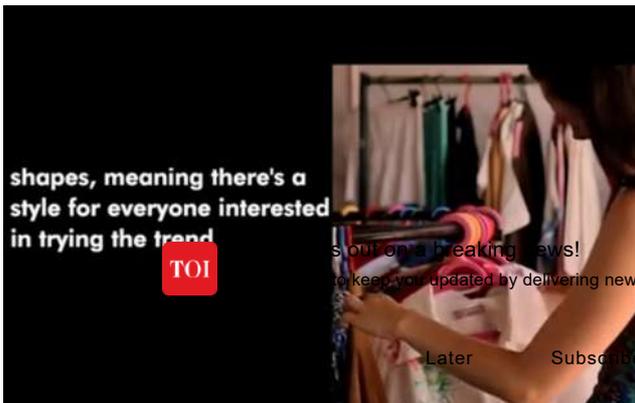


Olive Ridley turtle

https://timesofindia.indiatimes.com/city/chennai/tamil-nadu-urban-local-body-polls-32-out-of-200-wards-in-chennai-reserved-for-scheduled-candidates/articleshow/89178289.cms

RAMANATHAPURAM: Two olive ridley turtle nests with a total of 244 eggs were found in separate nests in M R Chathiram coastal village, marking the beginning of the annual nesting season in the Gulf of Mannar Marine National Park. While one nest was spotted on Thursday, the other was spotted on Friday. This marks a delayed start to the annual nesting season.

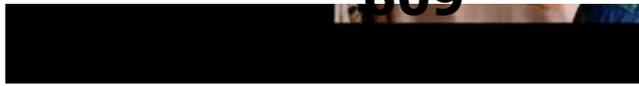
The eggs were taken to a turtle hatchery in the village.



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"There has been a year-on-year delay by 10 to 15 days at the beginning of the nesting season of olive ridley turtles. It began in mid-December in 2016 and 2017. It was the end of December in 2018, second week of January 2019 and the subsequent week in 2020 and January 15 last year. This year, it was delayed further by 12 more days to January 27," G Venkatesh, the forest range officer for Mandapam range, told TOI.

Mandapam range is the biggest nesting spot for the gentle giants of the sea in southern coastal Tamil Nadu, followed by Valinokkam in Tuticorin district that also comes under the Gulf of Mannar Marine National Park. The range officer attributed the delay in commencement of the nesting season to changes in the climatic conditions in the sea, including the water currents and temperature, among other factors that are yet to be ascertained.

While the annual nesting (egg laying) used to be from mid-December to March, the delay in beginning of nesting also delayed ending of the nesting by the last batch of turtles. The last turtle to lay its eggs in Mandapam range last year was at the end of April. Hatchlings born from the eggs – shifted from the natural nests to the hatchery to protect it from their predators – were released till June last year, after 50 to 52 days.

Last year, around 21,500 eggs were collected from nests in the Mandapam range, which is among the highest in a season during the last decade. Around 98% of the eggs hatched, and the hatchlings were released in the sea. The department has deployed 10 personnel to have a watch at nesting spots at night, collect the eggs, take them to the hatchery, guard them till the hatchlings are born and release them in the sea.

Forest department personnel hoped that the nesting season this year too would last longer than the previous year.

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6,000 turtle hatchlings released into sea off Chennai coast

CITY / P Oppili / Updated: Mar 24, 2016, 15:27 IST

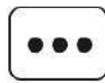


SYNOPSIS

Volunteers of the TREE Foundation, a Chennai-based sea turtle conservation group, has released 6,000 hatchli [Read More](#)



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CHENNAI: Volunteers of the TREE Foundation, a Chennai-based sea turtle conservation group, has released 6,000 hatchlings into the sea since January this year.

TREE Foundation chairperson Supraja Dharini said from the beginning of this year her team recorded 196 Olive Ridley turtle nests along the East Coast, from Neelankarai to Alambarai village near Marakkanam. Volunteers of the foundation cover a distance of 120km on the East Coast.



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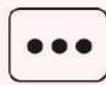


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Due to heavy rain in November and December and change in the ocean current patterns, the present Olive Ridley nesting season recorded less number of turtles coming to the beach. "Nesting activities got intensified only from middle of March and the nesting is still going on along the coast," she said.

Since the outside temperature has already gone over 35 degrees, the volunteers have covered all the nests that have been protected all along the coast with palm leaves and coconut leaves. In a normal nest, the hatchlings in the bottom and top will emerge as female and the ones in between will merge as males, when the temperature is around 30 degrees Celsius, she said.



Those interested in watching release of hatchlings into the ocean, send an email to treefoundation2002@gmail.com or call 9444306411.

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Olive Ridley sand sculpture ups awareness about turtle deaths

CITY / Feb 23, 2015, 01:19 IST



SYNOPSIS

This day last year, 824 dead turtles washed ashore at the Penna Estuary at Nellore in Andhra Pradesh. The mass death had raised

TOI



CHENNAI: This day last year, 824 dead turtles washed ashore at the [Penna Estuary](#) at [Nellore](#) in Andhra Pradesh. The mass death had raised an alarm about the increasing threat to turtles from trawler fishing boats. In Chennai, as many as 598 turtles have washed ashore this year. On Sunday, about 100 turtle lovers made a sand model of an Olive Ridley at the Neelankarai beach to pay homage to the dead turtles.

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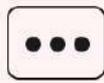
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Members of an NGO, the Tree Foundation, who patrol the beach between Neelankarai and Alambarai offered special prayers for the dead turtles. Supraja Dharini, founder and chairperson of the organisation said, "The major threat to sea turtles are from trawler fishing boats and gill nets which are used to catch rays and guitarfish. The state fisheries department needs to take action to enforce regulations to protect sea turtles."

Members of the group found 327 dead turtles between Neelankarai to Alambarai since nesting season began in December last year. The nesting season goes on until April.

After studying the mass death on February 22 last year, also known as the 'Black Day', the Andhra Pradesh fisheries department assistant director and the district forest officer of Nellore said the turtles had died of suffocation after being trapped in trawler nets.

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After studying the mass death on February 22 last year, also known as the 'Black Day', the Andhra Pradesh fisheries department assistant director and the district forest officer of Nellore said the turtles had died of suffocation after getting trapped in trawler nets.

In Andhra Pradesh, trawler boats are prohibited from fishing within 8km from the shore, while the Tamil Nadu marine fisheries regulations prohibit trawlers only within 5km.



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Prefeasibility Report

Sept 2019

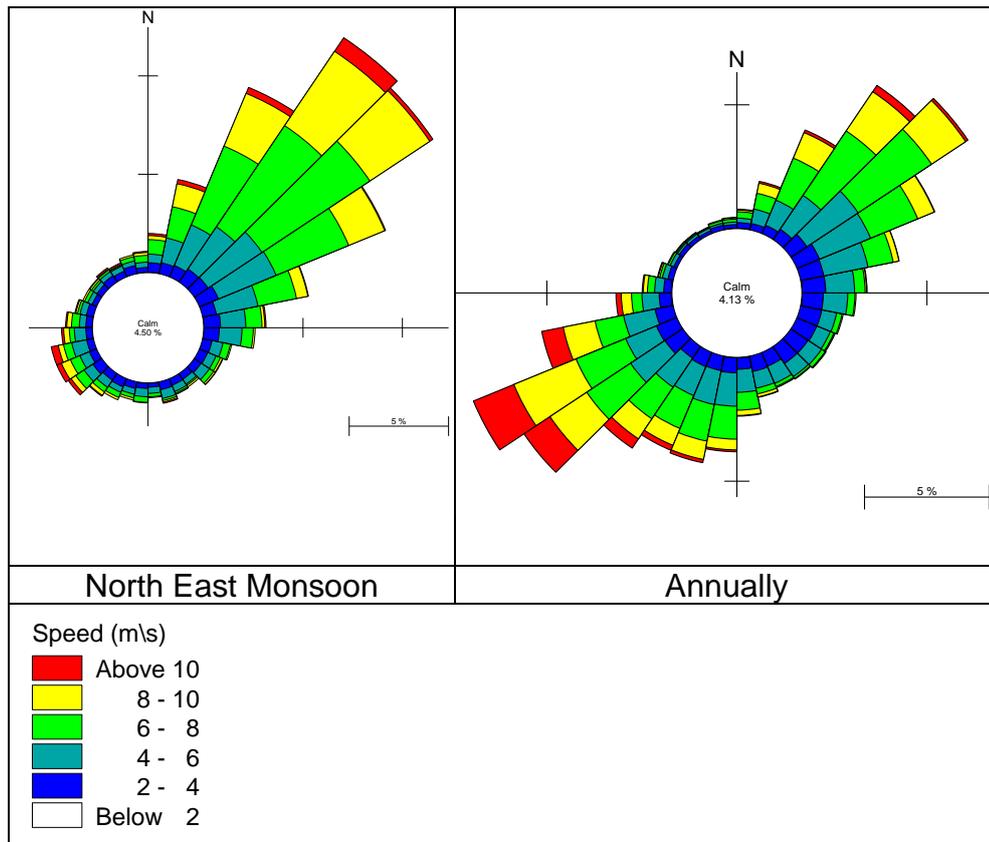


Figure 2-7 Seasonal Wind Rose Plot

2.7 Shoreline

The shoreline in the northern part of the proposed location is dynamic in nature, when compared to the southern part. Changes of about 60 m was noticed in this region in the position of the shoreline. The Shoreline change of the coast is shown in Figure 2-8 The changes in the shoreline during course of the time are shown in **Error! Reference source not found.**

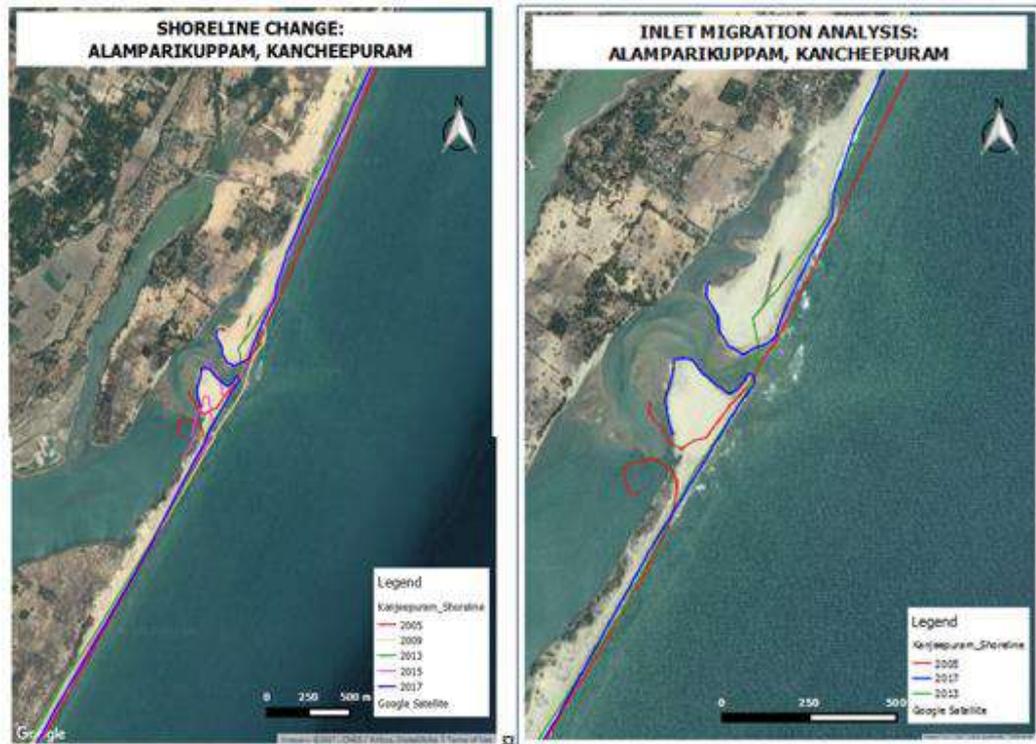


Figure 2-8 Shoreline change of Kancheepuram District



Figure 2-9 Satellite images showing changes in the shoreline

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ort, Edaikazhinadu, Tamil Nadu

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A Alamparai Fort
 Seaside ruins of a 17th-century fort
 Edaikazhinadu, Tamil Nadu 603304
 ★★★★★ 1,172 reviews

Places

- 3
- 2003
- ROAD
- Untitled Placemark
- 1
- 2
- 12°41'45.03"N, 79°51'35.91"E
- 2
- 2005
- 2021
- 2022

Layers

- Primary Database
 - Announcements
 - Borders and Labels
 - Places
 - Photos
 - Roads
 - 3D Buildings
 - Weather
 - Gallery
 - More
- Terrain

Ruler

Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length:	55.68	Meters
Ground Length:	55.68	
Heading:	109.02	degrees

Mouse Navigation

Image © 2022 Maxar Technologies

Google Earth

Imagery Date: 2/22/2005 12°16'29.93" N 80°02'06.56" E elev 0 m eye alt 3.91 km

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- Terrain

2/2005

Kadapakkam Bridge

Praveen Beach House

anp sea foods

Kadapakkam B

2022

2005

Uthukattamman Temple

Image © 2022 Maxar Technologies

Google Earth

1985

Imagery Date: 2/22/2005 12°16'26.00" N 80°00'48.81" E elev 0 m eye alt 976 m

Ruler

Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length:	55.68	Meters
Ground Length:	55.68	
Heading:	109.02	degrees

Mouse Navigation

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- Terrain

2/2022

RAHATH NAGAR ரஹத் நகர்

Sheng Long Shrimp Hatchery

2022

2005

Ruler

Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length:	55.68	Meters	<input type="button" value="v"/>
Ground Length:	55.68		
Heading:	109.02	degrees	

Mouse Navigation

Alamparai Fort

The Alampara Resort

1985

Image © 2022 Maxar Technologies
Image © 2022 CNES / Airbus

Google Earth

12°17'09.95" N 80°01'22.04" E elev 0 m eye alt 3.91 km

Search

ort, Edaikazhinadu, Tamil Nadu

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- Terrain

Ruler

Path Polygon Circle 3D path 3D polygon

Measure the distance between two points on the ground

Map Length:	55.68	Meters
Ground Length:	55.68	
Heading:	109.02	degrees

Mouse Navigation

Image © 2022 Maxar Technologies
Image © 2022 CNES / Airbus

Google Earth

Imagery Date: 9/7/2021 12°16'24.23" N 80°00'49.92" E elev 0 m eye alt 976 m

ENVIRONMENT IMPACT ASSESSMENT REPORT

FOR THE

CONSTRUCTION OF FISHING HARBOUR IN KALUVELI

WATERS AT AZHAGANKUPPAM VILLAGE IN

MARAKKANAM TALUK VILUPPURAM DISTRICT AND

ALAMPARAIKUPPAM VILLAGE IN CHEYYUR TALUK,

CHENGALPATTU DISTRICT, TAMIL NADU

Project Proponent



GOVERNMENT OF TAMILNADU
DEPARTMENT OF FISHERIES

Integrated Animal Husbandry and Fisheries Building,
Fanepet, Nandanam,
Chennai-600035,
Tamil Nadu,

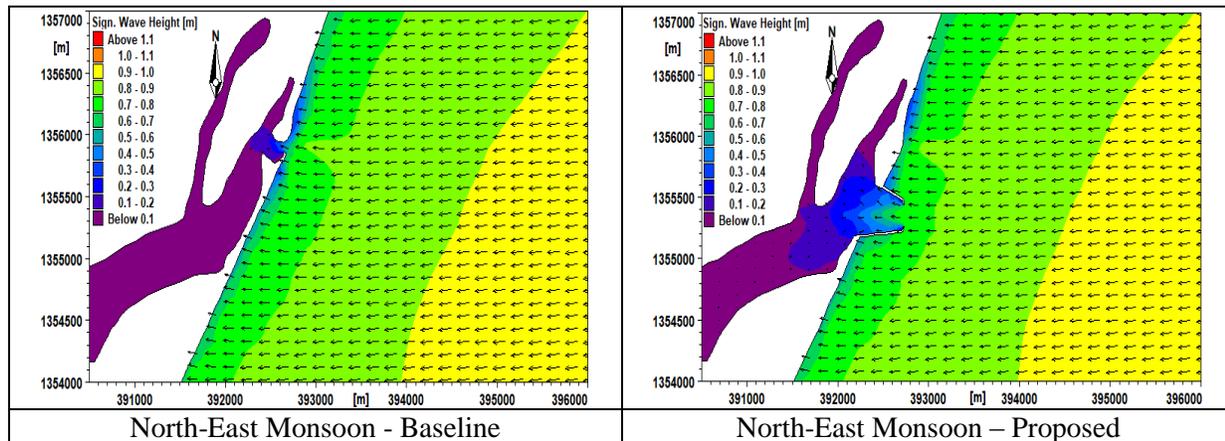
EIA Consultant



Cholamandalam MS Risk Services Limited

NABET Accredited EIA Consulting Organization
Certificate No: NABET/EIA/1922/RA 0170
6th Floor Gee Gee Universal, No.2 Mc. Nicholls Road
Chetpet, Chennai – 600 031

MARCH 2021



4.9.1.4 Impact on Shoreline

Shoreline change model was done for the proposed developments to ascertain the littoral sediment transport. The model predicted shoreline changes for 1 year and 5 year are shown in **Table 4-7**. Accretion is expected in the immediate vicinity of the proposed structures. The simulations indicate that under the baseline conditions the northward movement of the transport is in the order of 2,32,043 m³/year, southward movement is in the order of 35,316 m³/year and the net transport in the order of 1,96,727 m³/year for the given wave conditions.

The following results have noticed from the littoral drift prediction:

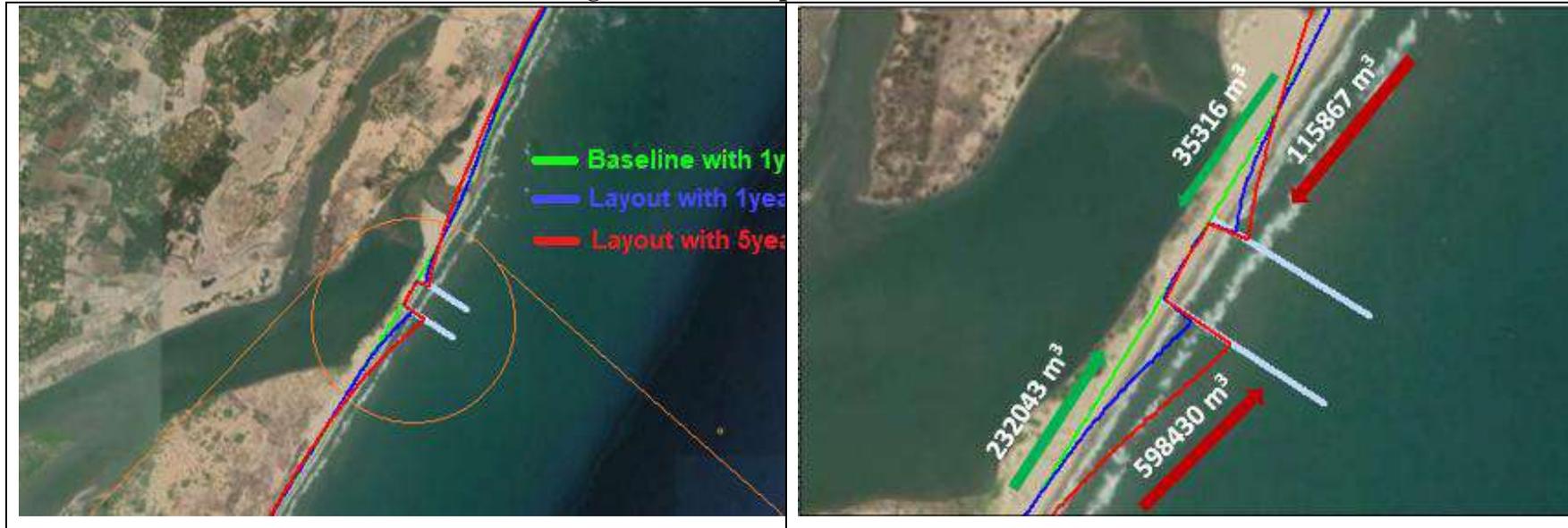
- Northward movement of sand in the order of 2,32,043 m³ and southward movement of sand in the order of 35,316 m³ is noticed with the baseline conditions for 1 year.
- Northward movement of sand in the order of 1,56,482 m³ and southward movement of sand in the order of 49,419 m³ is noticed with the proposed training wall conditions for 1 year.
- Northward movement of sand in the order of 5,98,430 m³ and southward movement of sand in the order of 1,15,867 m³ is noticed with the proposed training wall conditions for 5 years.

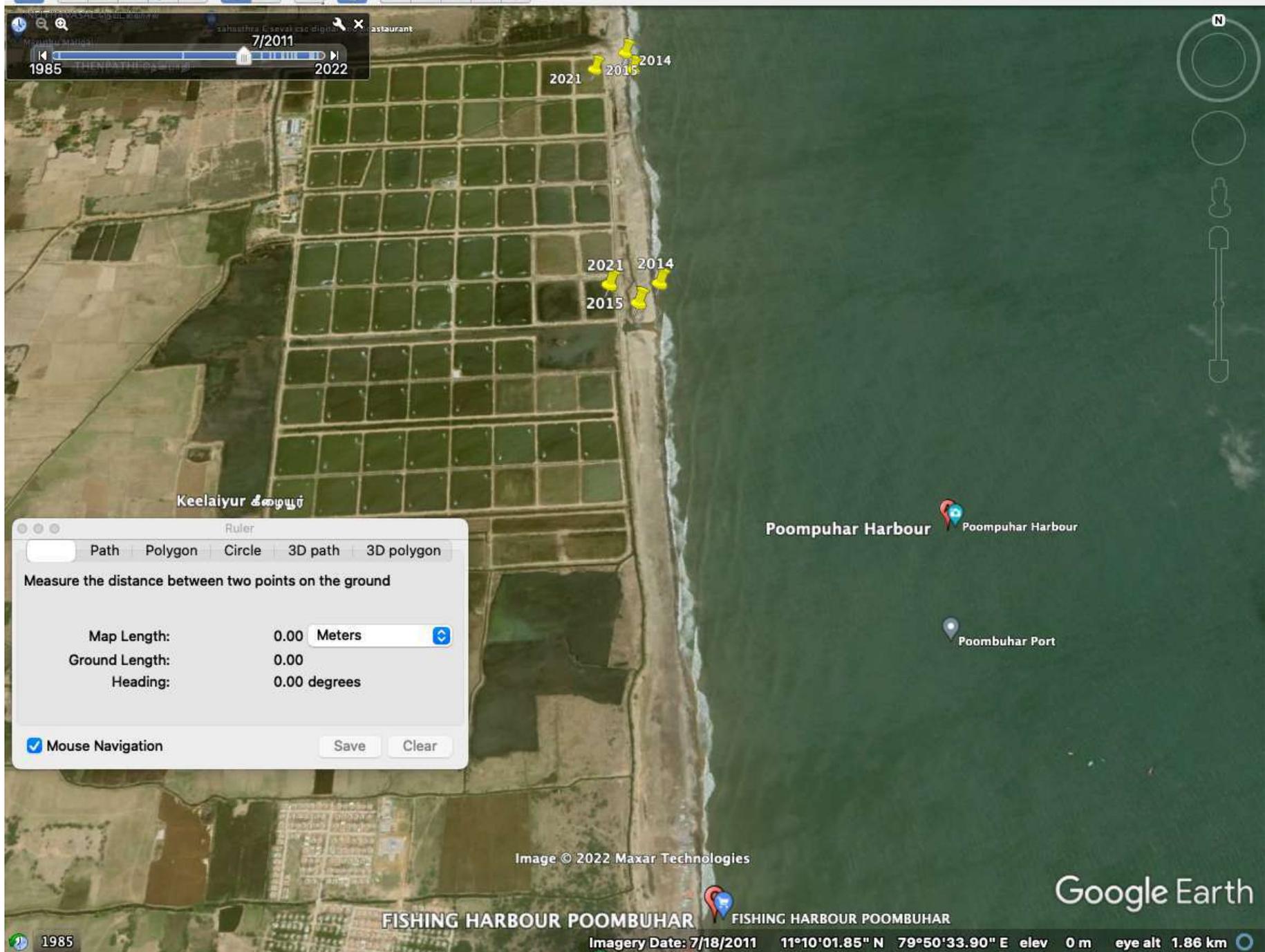
The long shore sediment transport for the proposed development is given in Table 4-7.

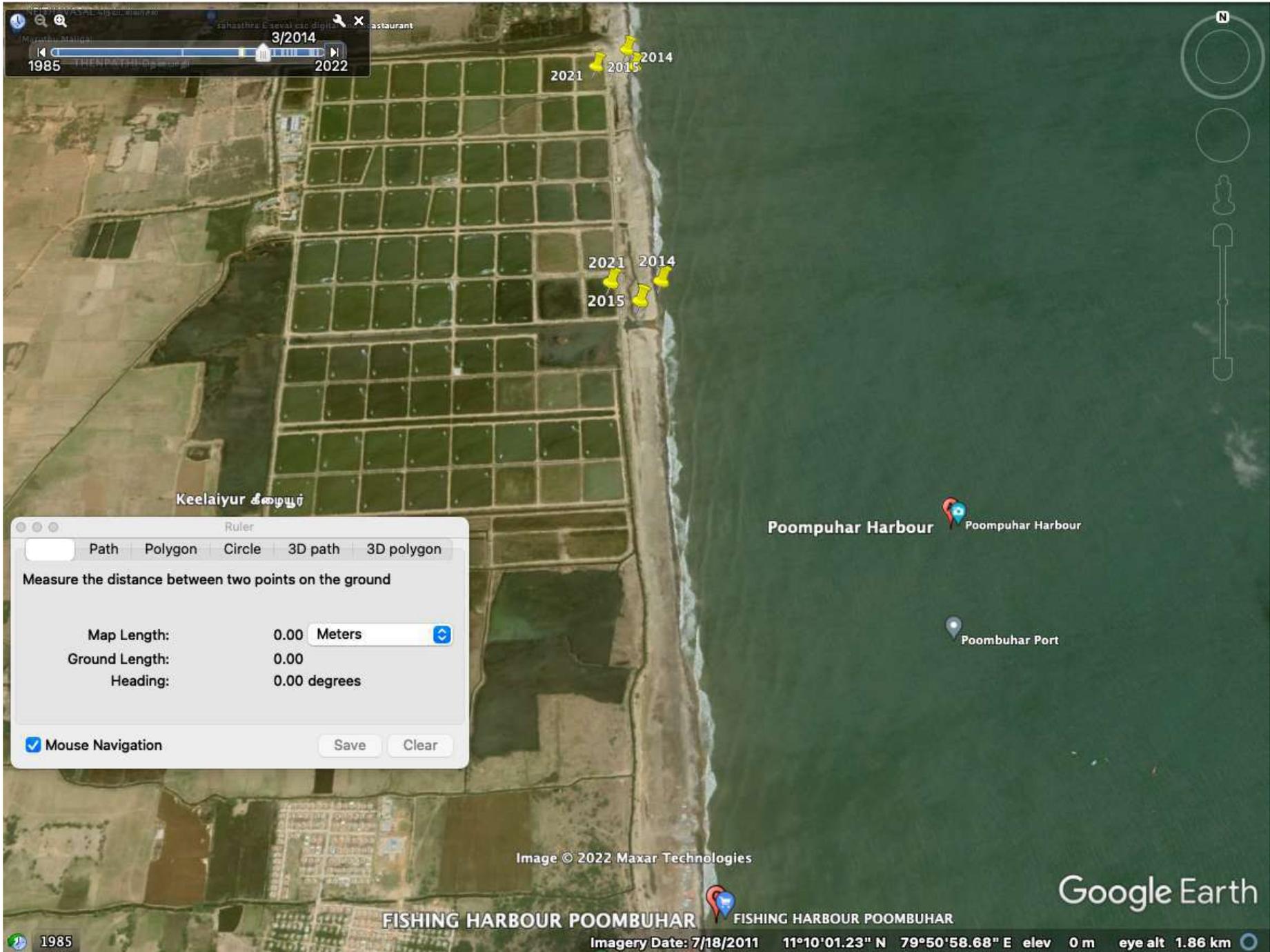
Table 4-7 Long shore Sediment transport

Scenario	Northward movement (m ³)	Southward movement (m ³)
Baseline scenario- 1yr	232043	35316
Groyne scenario- 1yr	156482	49419
Groyne scenario- 5yr	598430	115867

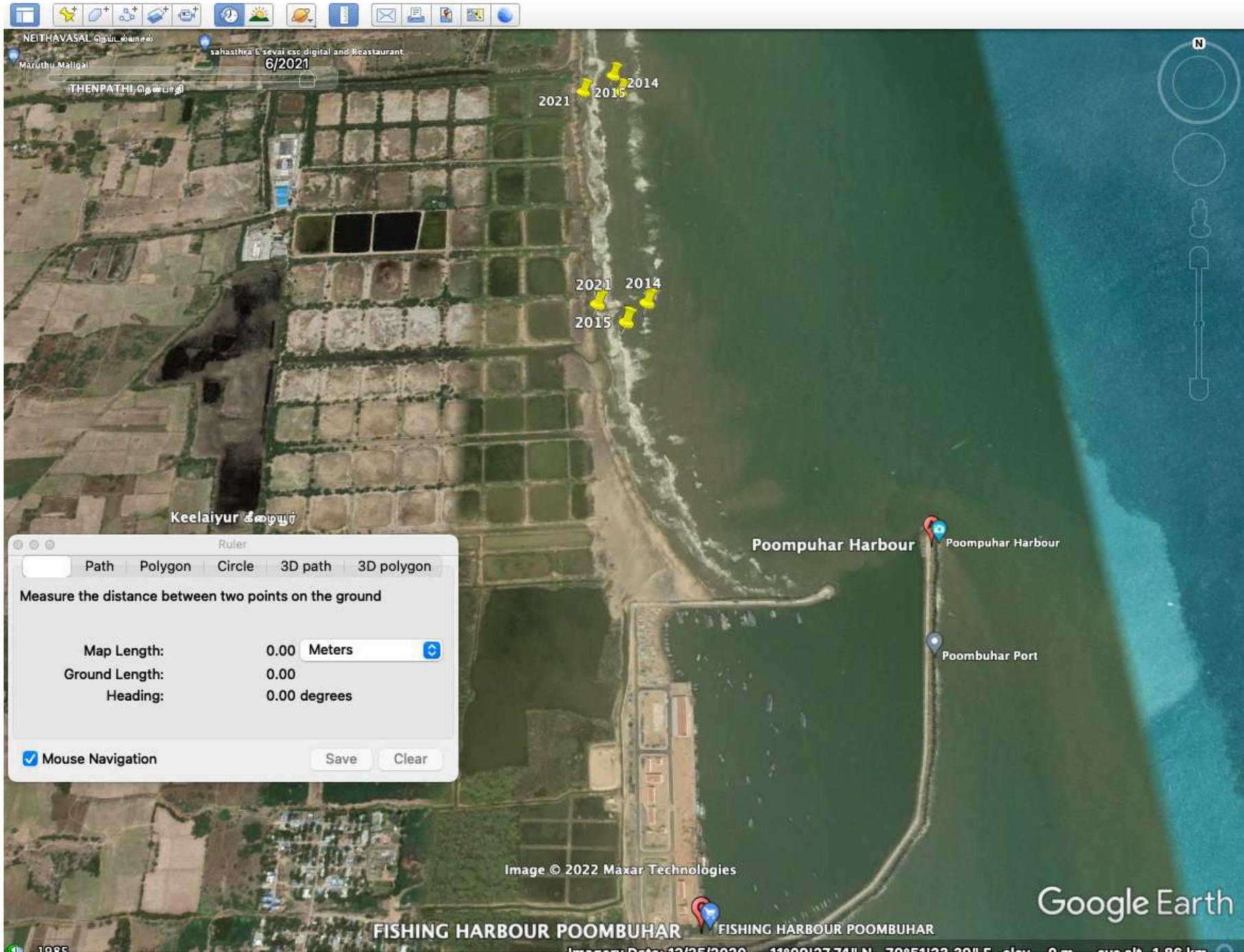
Figure 4-8 Model predicted shoreline

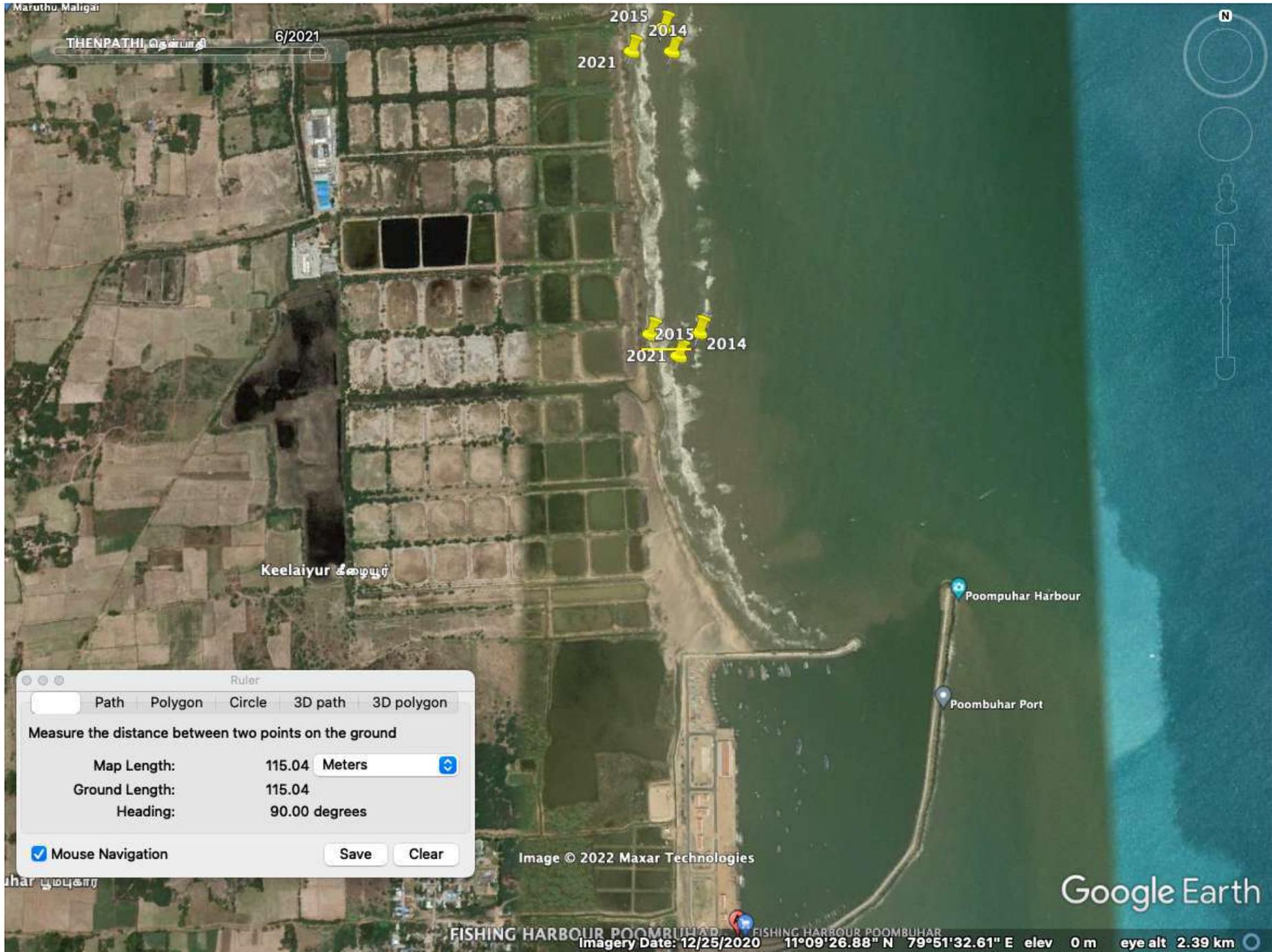


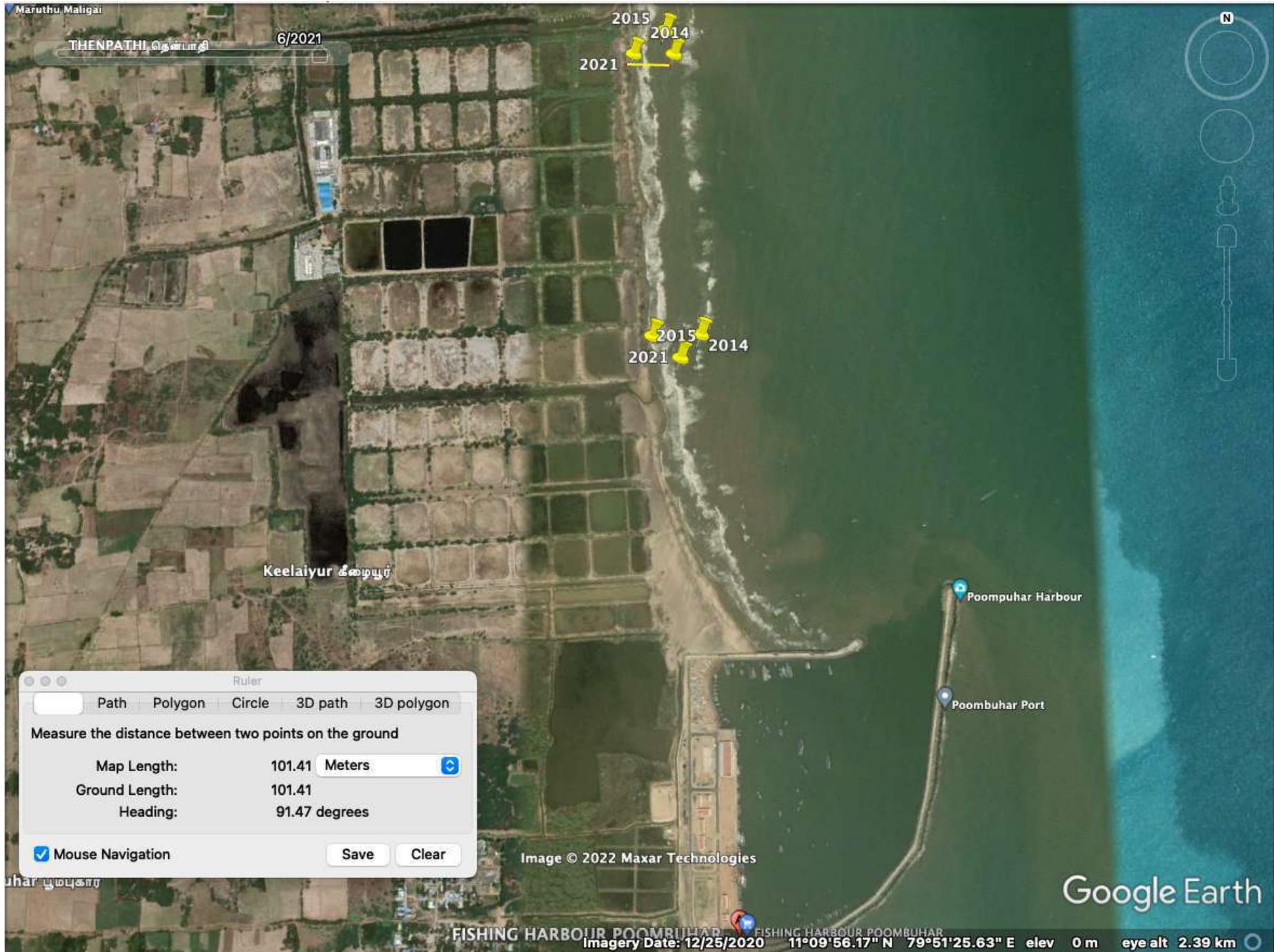












Order in W.P.No.29928 of 2019 dated 03.12.2019
in Jesu Rethinam V. The Union of India

1/7

W.P.No.29928 of 2019 and
W.M.P.No.29839 of 2019

DR.VINEET KOTHARI, J.
AND
R.SURESH KUMAR, J.

[Order of the Court was made by Dr.Vineet Kothari, J.]

We have heard both Mr.A.Yogeshwaran, learned counsel for the petitioner, Mr.G.Karthikeyan, learned Assistant Solicitor General for respondents 1 and 2, Mr.Kamalesh Kannan, learned Government Advocate for the 3rd respondent and Mr.E.Manoharan, learned Standing Counsel for the 4th respondent.

2.The issues raised in this PIL are serious in nature.

3.The petitioner has filed an Affidavit dated 02nd October 2019 of Mrs.Jesu Rethinam, W/o.Late Shri Christy, wherein in para 17, specific violations of the guidelines of 2011 notification have been pointed out by the petitioner. But, the reply counter Affidavit filed before this Court by Dr.Jayanthi.M., I.F.S. on 7th November, 2019, which we have perused, does not answer the specific deficiencies pointed out in the maps prepared by the respondents in this case, so as to say that they

are in compliance with the regulations of 2011 Notification. Therefore, we direct the said official Dr.Jayanthi,M., I.F.S. to file a fresh Affidavit by giving point wise reply and explanation for the deficiencies and violations pointed out in the Affidavit dated 02.10.2019 filed by the petitioner.

4.The learned Government Advocate submitted that Mr.P.H.Aravind Pandian, learned Additional Advocate General is appearing for the State and that he is not available today as he was out of station and therefore, requested for some time.

5.The learned Government Advocate further submitted that the maps produced by the petitioner in the typed set of papers at page 214, in the Scale of 1 cm : 25,000 (Kilometers), are not really legible and clear and the revised maps in the scale 1:5,000 are being prepared through Government Agency NCSCM viz., National Centre for Sustainable Coastal Management, Anna University Campus, Chennai and the same will be filed as soon as possible.

6.However, the learned counsel for the petitioner pointed out that as per the new Notification issued by the Ministry of Environment,

Forest & Climate Change on **18th January, 2019** (page 104 and at page 113 of the paper book), all coastal States and Union territory administrations have to revise their coastal zone management plan (CZMP) framed under CRZ Notification, 2011 and submit the revised maps at the earliest and unless and until such CZMPs are so revised, the CRZ Notification of 2011 shall continue to be followed for appraisal and CRZ clearance to be issued to such projects. He, therefore, submitted that not only the defects as per the 2011 Notification in the maps produced by the State are there, but the revised maps in consonance with the 2019 Notification may also carry the same mistakes and deficiencies and therefore, the respondents should be directed to first produce the revised maps as per 2011 Notification.

7. Accordingly, we make the following interim directions:

(I) For better assistance from the respondents side, we direct the 3rd respondent, the **Principal Secretary to Government, Environment & Forests Department, Chennai** and the 4th respondent, the **Member Secretary of the Tamil Nadu State Coastal Zone Management Authority, Chennai** to personally attend all the proceedings of this petition on all the dates of hearing. They are directed to instruct and brief the Advocate General, Additional

Advocate General or Government Advocates well in advance with their pleadings prepared, so that the matters do not get adjourned on such technical grounds, on the given dates.

(II) The revised Affidavit of **Dr.Jayanthi.M., I.F.S.** Director of Department of Environment and also the Member Secretary of Tamil Nadu State Coastal Zone Management Authority - 4th respondent may be filed before the next date of hearing, explaining point wise violations, as pointed out in the Affidavit of the petitioner dated 2nd October, 2019. The said official is also directed to remain present in the Court on the next date of hearing.

(III) The respondents are called upon to rectify the mistakes or violations in the maps, in accordance with the 2011 Notification first and the same get prepared through NCSCM on the scale of 1:5,000 as early as possible and produce the same before the Court on the next date of hearing. If it is not possible to produce it on the next date of hearing, the date wise steps taken by them for preparing the same with the Affidavit of the Director of Department of Environment and also the Member Secretary of TNSCZMA shall be produced on the next date of hearing before this Court.

(IV) The Affidavit of the Member Secretary shall also include the details of the public hearings which have taken place in this regard, since in the Affidavit filed, it is stated that the public hearings took place in different Districts in the month of April 2018, but the detailed descriptions of such public hearings were not given. The Court may like to know from the respondents that if the scale of map already produced before this Court was the only available map at the time of public hearing, which are not even legible or decipherable, how effective participation of the public at large could have taken place and whether the said maps, not prepared in the vernacular language also, was it suitably explained to the objectors or members of public or not and if any written representations or objections were made by them; how such objections were responded to or disposed by orders in writing by the respondents before finalising the said maps and the same shall be stated in the fresh Affidavit to be filed before this Court.

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(V) The matter is now adjourned by four weeks, with the expectation that all *bona fide* and sincere efforts will be made by all concerned authorities of the respondent Departments to assist the Court in the proper manner to arrive at the conclusions as to whether

the relevant Regulations under the Act and 2011 Notification and 2019 Notification have been followed by the respondents or not, to subserve the cause of Public Safety in Coastal areas in this regard.

(VI) Respondents No.1 and 2 are also directed to file their counter before the next date of hearing.

8.Put up the matter along with W.P.No.7019 of 2018 on **06th January 2020.**

(V.K.,J.) (R.S.K.,J.)
03.12.2019.

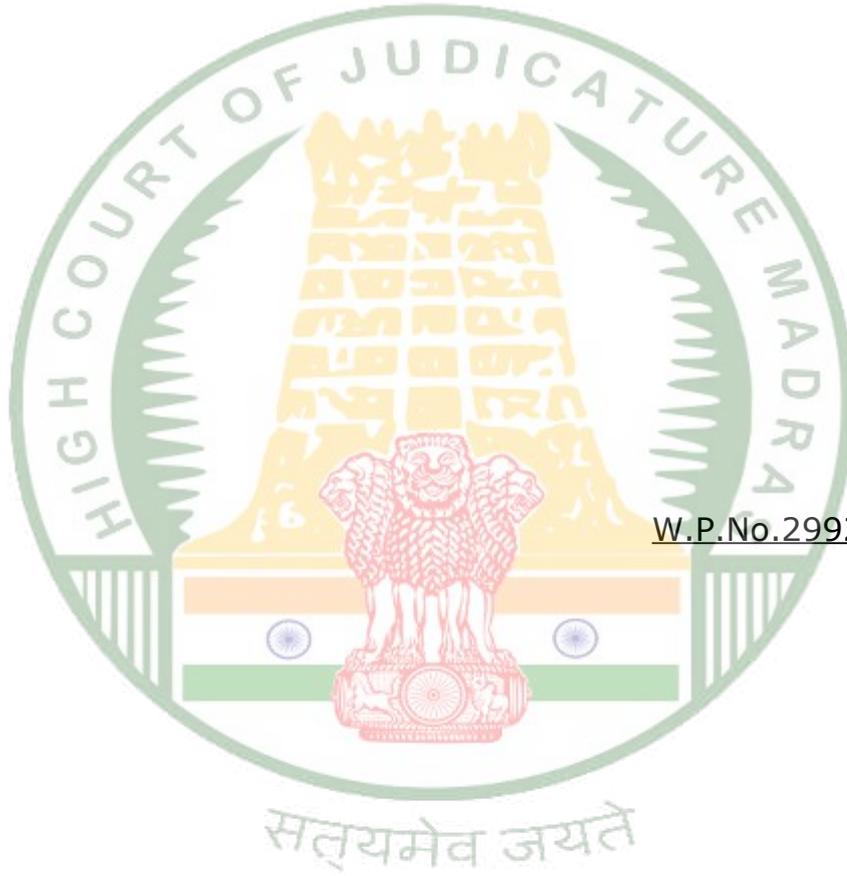
Index: Yes/No
Speaking Order: Yes/No

Sgl

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DR.VINEET KOTHARI, J.
AND
R.SURESH KUMAR, J.

Sgl



W.P.No.29928 of 2019

WEB COPY

03.12.2019

1/16 Order dt.13.02.2020 in W.P.Nos.29928/19 and 7019/2018
[M/s.Jesu Rethinam Vs. The Union of India and 4 ors]

IN THE HIGH COURT OF JUDICATURE AT MADRAS

DATED :: 13.02.2020

CORAM

THE HON'BLE DR.JUSTICE VINEET KOTHARI

AND

THE HON'BLE MR.JUSTICE R.SURESH KUMER

W.P.Nos.29928 of 2019 and W.P.No.7019 of 2018

and

**WMP.Nos.29837, 29839 and 29840 of 2019 and 8662 and 8663
of 2018**

W.P.No.29928 of 2019

Jesu Rethinam

....

Petitioner

-VS-

- 1.The Union of India,
Rep. by its Secretary to Government
Ministry of Environment & Forests
Paryavaran Bhavan, CGO Complex,
Lodhi Road, New Delhi.
2. The National Coastal Zone Management Authority
Rep. by its Member Secretary
O/o Ministry of Environment & Forests
Paryavaran Bhavan, CGO Complex, Lodhi Road,
New Delhi.
3. The State of Tamil Nadu
Rep by its Principal Secretary to Government
Department of Environment, Fort St. George,
Chennai.
4. The Tamil Nadu Coastal Zone Management Authority
Rep. by its Member Secretary,

Panagal Building, Saidapet, Chennai-15. ... Respondents

PRAYER: Petition under Article 226 of the Constitution of India, praying for issuance of a Writ of Certiorarified Mandamus to call for the records of the 1st respondent culminating in the order in F.No.12-8/2018-IA-III dated 24/10/2018 approving the Coastal Zone management plans under the CRZ Notification, 2011 for the state of Tamil Nadu, quash the same and direct the 2nd and 3rd respondents to prepare the coastal zone management plans in strict accordance with the guidelines issued in S.O.19(E) dated 06/01/2011 and GSR 37 (E) dated 18/01/2019.

W.P.No.7019 of 2018

Jesu Rethinam

...

Petitioner

-vs-

- 1.The Union of India,
Rep. by its Secretary to Government
Ministry of Environment & Forests
Paryavaran Bhavan, CGO Complex,
Lodhi Road, New Delhi.
2. The National Coastal Zone Management Authority
Rep. by its Member Secretary
O/o Ministry of Environment & Forests
Paryavaran Bhavan, CGO Complex, Lodhi Road,
New Delhi.
3. The State of Tamil Nadu
Rep by its Principal Secretary to Government
Department of Environment, Fort St. George,
Chennai.

4. The Tamil Nadu Coastal Zone Management Authority
Rep. by its Member Secretary,
Panagal Building, Saidapet, Chennai-15.

5. The Tamil Nadu Pollution Control Board
Rep by its Member Secretary,
76, Mount Salai,
Guindy, Chennai- 600 032.

Respondents

PRAYER: Petition under Article 226 of the Constitution of India, praying for issuance of a Writ of Mandamus directing the 3rd and 4th respondents to withdraw the revised draft Coastal Zone Management Plan for the Districts of Thiruvallur, Chennai, Kancheepuram, Villupuram, Cuddalore, Nagaipatnam, Thiruvarur, Thanjavur, Pudukottai, Ramanathapuram, Thoothukudi, Thirunelveli and Kanyakumari uploaded on the website of the 3rd respondent at www.environment.tn.nic.in on 19/02/2018 forthwith, prepare Coastal Zone Management Plans in strict compliance with the Coastal Regulation Zone Notification, 2011, publish the same for public consultation and notify the Coastal Zone Management Plans in the manner specified by the Coastal Regulation Zone Notification, 2011.

For Petitioner : Mr.A.Yogeshwaran
(in both W.P.'s)

For Respondents : Mr.G.Karthikeyan (R1 and R2)
(in W.P.No.29928 Assistant Solicitor General
of 2019) Mr.S.Prabhu (R3)
Additional Government Pleader
Mr.S.Kamalesh Kannan (R4)
Government Advocate

(in W.P.No.7019 : Mr.G.Karthikeyan (R1 and R2)
of 2018) : Assistant Solicitor General
Mr.S.Kamalesh Kannan (R3)
Government Advocate

Mr.E.Manoharan (R4)
Additional Government Pleader
Ms.Rita Chandrasekar (R5)

COMMON ORDER

(By ***Dr.Vineet Kothari,J.***)

Both the Writ Petitions have been filed by the petitioner Ms.Jesu Rethinam seeking the following prayers:

W.P.No.29928 of 2019

To call for the records of the First respondent culminating in the order in F.No.12-8/2018-IA-III dated 24/10/2018 approving the Coastal Zone management plans under the CRZ Notification, 2011 for the State of Tamil Nadu, quash the same and direct the Second and Third respondents to prepare the coastal zone management plans in strict accordance with the guidelines issued in S.O.19(E) dated 06/01/2011 and GSR 37 (E) dated 18/01/2019.

W.P.No.7019 of 2018

To direct the third and fourth Respondents to withdraw the revised draft Coastal Zone Management Plan for the Districts of Thiruvallur, Chennai, Kancheepuram, Villupuram, Cuddalore, Nagaipattinam, Thiruvarur, Thanjavur, Pudukottai, Ramanathapuram, Thoothukudi, Thirunelveli and Kanyakumari uploaded on the website of the 3rd respondent at www.environment.tn.nic.in on 19/02/2018 forthwith, prepare Coastal Zone Management Plans in strict compliance with the Coastal Regulation Zone Notification, 2011, publish the same for public consultation and notify the Coastal Zone Management Plans in the manner specified by the Coastal Regulation Zone Notification, 2011.

2. These Public Interest Litigations were entertained and notice was issued to the respondents and upon hearing the learned counsel for the parties this Court passed the detailed interim order on **03.12.2019** in W.P.No.29928 of 2019 which is quoted below for ready reference:

"We have heard both Mr.A.Yogeshwaran, learned counsel for the petitioner, Mr.G.Karthikeyan, learned Assistant Solicitor General for respondents 1 and 2, Mr.Kamalesh Kannan, learned Government Advocate for the 3rd respondent and Mr.E.Manoharan, learned Standing Counsel for the 4th respondent.

2.The issues raised in this PIL are serious in nature.

3.The petitioner has filed an Affidavit dated 02nd October 2019 of Mrs.Jesu Rethinam, W/o.Late Shri Christy, wherein in para 17, specific violations of the guidelines of 2011 notification have been pointed out by the petitioner. But, the reply counter Affidavit filed before this Court by Dr.Jayanthi.M., I.F.S. on 7th November, 2019, which we have perused, does not answer the specific deficiencies pointed out in the maps prepared by the respondents in this case, so as to say that they are in compliance with the regulations of 2011 Notification. Therefore, we direct the said official Dr.Jayanthi,M., I.F.S. to file a fresh Affidavit by giving point wise reply and explanation for the deficiencies and violations pointed out in the Affidavit dated 02.10.2019 filed by the petitioner.

4.The learned Government Advocate submitted that Mr.P.H.Aravind Pandian, learned Additional Advocate General is appearing for the State and that he is not available today as he was out of station and therefore, requested for some time.

5.The learned Government Advocate further submitted that the maps produced by the petitioner in the typed set of papers at page 214, in the **Scale of 1 cm : 25,000 (Kilometers), are not really legible and clear and the revised maps in the scale 1:5,000 are being prepared through Government Agency NCSCM viz., National Centre for Sustainable Coastal Management, Anna University Campus, Chennai and the same will be filed as soon as possible.**

6.However, the learned counsel for the petitioner pointed out that as per the new Notification issued by the Ministry of Environment, Forest & Climate Change on **18th January, 2019** (page 104 and at page 113 of the paper book), **all coastal States and Union territory administrations have to revise their coastal zone management plan (CZMP) framed under CRZ Notification, 2011 and submit the revised maps at the earliest and unless and until such CZMPs are so revised, the CRZ Notification of 2011 shall continue to be followed for appraisal and CRZ clearance to be issued to such projects. He, therefore, submitted that not only the defects as per the 2011 Notification in the maps produced by the State are there, but the revised maps in**

consonance with the 2019 Notification **may also carry the same mistakes and deficiencies and therefore**, the respondents should be directed to first produce the revised maps as per 2011 Notification.

7. Accordingly, we make the following interim directions:

(I) For better assistance from the respondents side, we direct the 3rd respondent, the **Principal Secretary to Government, Environment & Forests Department, Chennai** and the 4th respondent, the **Member Secretary of the Tamil Nadu State Coastal Zone Management Authority, Chennai** to personally attend all the proceedings of this petition on all the dates of hearing. They are directed to instruct and brief the Advocate General, Additional Advocate General or Government Advocates well in advance with their pleadings prepared, so that the matters do not get adjourned on such technical grounds, on the given dates.

(II) The revised Affidavit of **Dr. Jayanthi.M., I.F.S.,** Director of Department of Environment and also the Member Secretary of Tamil Nadu State Coastal Zone Management Authority - 4th respondent may be filed before the next date of hearing, **explaining point wise violations, as**

pointed out in the Affidavit of the petitioner dated 2nd October, 2019. The said official is also directed to remain present in the Court on the next date of hearing.

(III) The respondents are called upon to rectify the mistakes or violations in the maps, in accordance with the 2011 Notification first and the same get prepared through NCSCM on the scale of 1:5,000 as early as possible and produce the same before the Court on the next date of hearing. If it is not possible to produce it on the next date of hearing, the date wise steps taken by them for preparing the same with the Affidavit of the Director of Department of Environment and also the Member Secretary of TNSCZMA shall be produced on the next date of hearing before this Court.

(IV) The Affidavit of the Member Secretary shall also include the details of the public hearings which have taken place in this regard, since in the Affidavit filed, it is stated that the public hearings took place in different Districts in the month of April 2018, but the detailed descriptions of such public hearings were not given. The Court may like to know from the respondents that if the scale of map already produced before this

*Court was the only available map at the time of public hearing, which are not even legible or decipherable, **how effective participation of the public at large could have taken place** and whether the said maps, **not prepared in the vernacular language also**, was it suitably explained to the objectors or members of public or not and if any written representations or objections were made by them; how such objections were responded to or disposed by orders in writing by the respondents before finalising the said maps and the same shall be stated in the fresh Affidavit to be filed before this Court.*

*(V) The matter is now adjourned by four weeks, with the expectation **that all bona fide and sincere efforts will be made by all concerned authorities of the respondent Departments to assist** the Court in the proper manner to arrive at the conclusions as to whether the relevant Regulations under the Act and 2011 Notification and 2019 Notification have been followed by the respondents or not, to subserve the cause of Public Safety in Coastal areas in this regard.*

(VI) Respondents No.1 and 2 are also directed to file their counter before the next

date of hearing.

*8.Put up the matter along with
W.P.No.7019 of 2018 on **06th January
2020.***

3. An Additional Counter Affidavit has been filed today by the fourth respondent on behalf of the third respondent. The learned counsel for the State has drawn our attention that to paragraph 11 of the said Affidavit which is quoted below for ready reference.:

"11. I humbly submit that after the receipt of Work Order, the Institute of Remote Sensing, Chennai.25 has furnished the draft contract agreement for the preparation of CZMP on 1:5000 Scale as per the CRZ Notification, 2011 with schedule for timeline indicating that the draft map will be submitted in 12 months, as the work involves the following factors.

a) Superimposition of approved HTL and LTL onto digital Cadastral Maps at 1:5000 scale (village maps in case of rural areas and ward maps in case of city/town) for entire coast of Tamil Nadu and tidal influenced water bodies in Tamil Nadu.

b) *Delineation of 200m, 500m buffer lines for HTL of Bay of Bengal and 100m or width of creek buffer lines for Tidal influenced water bodies as per Coastal Regulation Notification, 2011*

c) *Superimposition of Ecologically Sensitive Areas like Mangroves, Coral, Coral reefs, Sand dunes, Mud flats, National Parks, Marine Parks, Sanctuaries, reserve forest, wildlife habitats and other protected areas, Salt Marshes, Turtle Nesting grounds, Horse Shoe habitats, Sea Grass beds, Bird Nesting sites, Archeological sites indicated in approved CZMP within Coastal Regulation Zone on to digital cadastral maps.*

d) *Generation of 50m buffer zone for mangroves patches with area more than 1000 sq.m. as indicated in approved CZMP prepared as per CRZ Notification, 2011*

e) *Demarcation of Coastal Regulation Zones (I-A, 1-B, II,III,IV-A and IV-B) for entire cost of Tamil Nadu and 21 Islands within administrative control of Government of Tamil Nadu.*

f) *Generation of Local Level CRZ Maps at 1:5000 scale as per CRZ Notification, 2011 following standard national color codes, symbols used in Approved CZMP.*

g) Collection and Superimposition of cyclone shelters, rain shelters, helipads and other infrastructure including road network in coastal area using GPS based filed survey and ancillary data collected from field departments on cadastral maps at 1:5000 scale.

h) Collection and Superimposition of fishing village boundaries, common properties of the fishermen communities, fishing jetties, ice palants, fish drying platforms or areas infrastructure facilities of fishing and local communities such as dispensaries, roads, schools, fishing zones, fish breeding areas and like using GPS based filed survey on cadastral maps.

i) Generation of Local Level Coastal Zone Management Plants at 1:5000 scale for entire coast of Tamil Nadu and Islands within administrative control of Tamil Nadu Government following guidelines provided in CRZ Notification, 2011."

5. In view of the aforesaid situation and the averments made in the aforesaid Additional Counter Affidavit, we are of the opinion that in view of the new CRZ Notification 2019 issued by the Central Government, the exercise of making of maps is again required to be undertaken by the concerned authorities and which process is

underway now only, when the said maps are ready, the question of again providing the public hearing can arise.

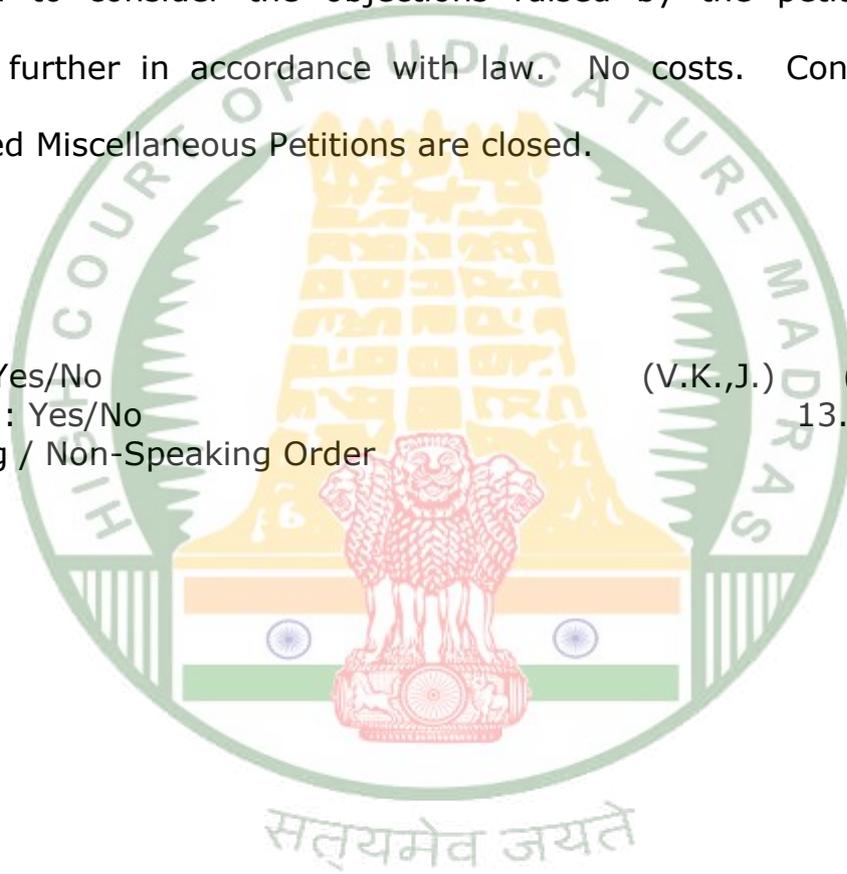
6. The grievance of the petitioner seems to be that if the original map itself is not correct as per CRZ Regulation 2011, the very purpose of fresh public hearings is likely to be frustrated.

7. We are of the opinion that we need not constantly monitor the said fresh process of making of new Maps in this PIL and no useful purpose will be served in keeping these PIL petitions pending any longer. Our directions given in the detailed interim order dated **03.12.2019** will continue to be in operation and apply to the Respondents in the said process. Let the entire process of making fresh maps as per the latest Notification dated 18.01.2019 be completed in accordance with law after the effective public hearings, where, it is needless to say that the petitioner will also have a right of participation and of raising all the objections and making her suggestions, which will be considered by the competent authorities. Thereafter also the petitioner will not be estopped to knock the doors of the Court once again for the limited scope of judicial review in such cases, if the occasion so arises.

8. Accordingly, these present PIL Writ Petitions are disposed of. We leave it free to the petitioner to file her objections before the second and the fourth respondents and the said Authorities are expected to consider the objections raised by the petitioner and proceed further in accordance with law. No costs. Consequently, connected Miscellaneous Petitions are closed.

Index : Yes/No
Internet : Yes/No
Speaking / Non-Speaking Order
arr

(V.K.,J.) (R.S.K,J.)
13.02.2020



WEB COPY

DR.VINEET KOTHARI, J.
and
R.SURESH KUMAR, J.

arr

To

- 1.The Union of India,
Rep. by its Secretary to Government
Ministry of Environment & Forests
Paryavaran Bhavan, CGO Complex,
Lodhi Road, New Delhi.
2. The National Coastal Zone Management Authority
Rep. by its Member Secretary
O/o Ministry of Environment & Forests
Paryavaran Bhavan, CGO Complex, Lodhi Road,
New Delhi.
3. The State of Tamil Nadu
Rep by its Principal Secretary to Government
Department of Environment, Fort St. George,
Chennai.
4. The Tamil Nadu Coastal Zone Management Authority
Rep. by its Member Secretary,
Panagal Building, Saidapet, Chennai-15.
5. The Tamil Nadu Pollution Control Board
Rep by its Member Secretary,
76, Mount Salai,
Guindy, Chennai- 600 032.

W.P.Nos.29928 of 2019 and W.P.No.7019 of 2018

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13.02.2020

Audit Report

On SOP for Protection & Conservation of Sea Turtles, and steps taken by the Government of Tamil Nadu

By Shekar Dattatri - Independent Auditor appointed by Commissioner of Fisheries, TN



**Copy submitted to Dept of Fisheries,
Govt of Tamil Nadu**

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BACKGROUND TO THE INDEPENDENT AUDIT

On 20.01.2015, The Times of India, Chennai, carried a news article titled '**Murder most foul: 35 turtles washed ashore**', with the sub-heading: "*Fisheries Department says it doesn't have resources to crack down on erring trawlers*"

Following this, a *suo moto* PIL, W.P. No. 1499 of 2015 was registered by the Hon'ble Chief Justice of the High Court of Madras, for issuance of *Writ of Mandamus* directing the Respondents, i.e., the Secretary to Government, Animal Husbandry, Dairying and Fisheries Department, and the Commissioner of Fisheries, to take action against erring fishermen and ensure safe living of sea animals including sea turtles.

Further, as per an order of the Hon'ble High Court dated 09.02.2015, the following were also impleaded as respondents:

i) The Secretary, Ministry of Environment and Forests, Govt. of India (ii) The Secretary, Department of Forest, Government of Tamil Nadu (iii) The Coastal Security Group, Chennai (iv) The Indian Coast Guard, Chennai (v) The Central Marine Fisheries Research Institute, Kochi (vi) The Member Secretary, Tamil Nadu Coastal Zone Management Authority, Chennai.

When the afore-mentioned Writ Petition came up for hearing before the Hon'ble High Court on 14.10.2015, it directed the Government to place a Final SOP (Standard Operating Procedure) before the court three days prior to the next date of hearing.

In response to this, the Commissioner of Fisheries, Chennai placed an SOP before the Hon'ble Court on 30.11.2015, titled: **Standard Operating Procedure (SOP) for Protection and Conservation of Sea Turtles**.

In its order dated January 28, 2016, the Hon'ble High Court directed that "An audit by a non-Governmental organization working in the field of turtle conservation be placed before us atleast three days before the next date of hearing along with the status report of the State Government with a copy served in advance to the learned Amicus. List on 18.4.2016"

However, it was only in April 2016 that the Commissioner of Fisheries, Tamil Nadu, approached the undersigned, to perform the audit, vide Lr. No. 40337/J5/2014, dated 7.4.2016.

In its order dated 18.4.2016, the Hon'ble High Court held the Government in breach of its order dated 28.01.2016 for "having done nothing till the anvil of the hearing for carrying out an audit by a non-governmental organization working in the field of Turtle Conservation". It further ordered that the report of the independent auditor should be placed before the court at least three days prior to the next hearing on 11.07.2016.

This was communicated to the undersigned by the Commissioner of Fisheries, Tamil Nadu vide Lr.No.40337/J5/2014, dated 03.05.2016.

The brief given to the independent auditor was as follows, which is an extract from the above-cited communication:

“In accordance with the directions of the Hon’ble High Court of Madras issued on 28.1.2016 you have been nominated to conduct Independent audit regarding the steps taken during the breeding season and the effectiveness of the “Standard Operating Procedure (SOP) for Protection and Conservation of Sea Turtles” finalised by the Government.

Accordingly, the undersigned, Shekar Dattatri, Secretary and Managing Trustee, Trust for Environmental Education has audited the SOP, as well as the steps taken by the Government as per its SOP.

Signed,



Shekar Dattatri
Secretary & Managing Trustee
Trust for Environmental Education

Date: June 29, 2016

The Trust for Environmental Education was founded in 1986 by the late legal luminary, Shri S. Govind Swaminadhan, and has been engaged in the field of conservation and environmental education since its inception. Between 2007-2010, Shri Shekar Dattatri served as a Member of the National Board for Wildlife, the apex advisory body to the Government of India on wildlife conservation. For the past three years he has served as a Member of the State Board for Wildlife, Tamil Nadu. In November 2009 he was part of an expert committee constituted by the National Tiger Conservation Authority to audit the functioning of the Nagarjuna-Srisailam Tiger Reserve in the erstwhile state of Andhra Pradesh. He has closely observed olive ridley sea turtles since 1976 and has made documentary films on the subject. As a result he is extremely conversant with sea turtle related issues on the east coast of India.

EXECUTIVE SUMMARY

As per the terms of reference contained in the letter from the Commissioner of Fisheries, Tamil Nadu, and based on documents provided by the Department of Fisheries, the independent auditor has conducted an assessment of the SOP, as well as of the steps taken by the government for sea turtle protection and conservation during the 2015 - 2016 turtle breeding and nesting season.

An SOP, by definition, is meant to be a detailed and precise document containing step-by-step procedures and protocols for accomplishing its objectives. Therefore, the SOP under audit ought to have contained such details, based on the current legal, policy and Institutional frameworks, so as to: (a) reduce recurring sea turtle mortalities caused by mechanised fishing activities, and (b) mitigate dangers to sea turtles from nesting habitat destruction and other factors. It should also have specified the precise interventions needed, with specific target timelines for achieving various objectives. However, such details are largely absent from the SOP, and therefore the auditor is of the considered opinion that the document under audit cannot be considered a final SOP, but only a preliminary or interim SOP.

In fact, under (2) of page 6, 'Implementation and Coordination of Management Measures', the SOP implies as much, by stating: ***"For effective implementation of conservation measures, the Commissioner of Fisheries and the Chief Conservator of Forest shall jointly convene coordination meeting for formulating policy frame work, legal frame work and Institutional frame work for the entire State. The Coordination meeting shall be conducted two months in advance of the commencement of the Turtle breeding season and continue the review every two months till the end of the Turtle breeding season."***

Since the SOP under audit falls short of too many important details, the auditor is of the view that, in its present form, it cannot be effective to deal with the serious situation of turtle mortalities. Only when all the protocols, methodologies and specifications are clearly spelt out, can it be regarded as a blueprint for effective action. Hence there is an urgent need for a revised SOP, which must also incorporate several important suggestions made by the learned Amicus in his memos, and suggestions submitted to the government by NGOs and individuals working in the field of turtle conservation. Since success in Tamil Nadu can have wide-ranging positive implications for turtle conservation in the rest of India, it is hoped that no stone will be left unturned in this effort.

Although the High Court had directed that an independent auditor should be appointed, vide its order dated 28.1.2016, this auditor was officially requested by the Department of Fisheries to take up the task only vide letter dated 22.04.2016 (**Annexure 01**), by which time it was the fag end of the turtle nesting and breeding season. As a result, the auditor could not observe the actions taken by the government in real time, since most such actions had culminated prior to the date of his appointment.

In view of the fact that the SOP contains several lacunae, audit makes the following key recommendations:

1. Given its dearth of specifics, the SOP should be revised forthwith to make it unambiguous, comprehensive and actionable. The revised SOP should contain detailed and specific protocols and timelines, particularly with respect to the two most crucial remedies for reducing turtle mortalities: (a) fixing of Turtle Excluder Device (TED) in trawl nets as mandated by the Tamil Nadu Marine Fishing Regulation Act, and (b) enforcing the “no fishing zone” of 5 nautical miles from the shore for all mechanized fishing boats during the turtle breeding and nesting season, as per the TMFRA.
2. The SOP should also fix accountability for specific remedial actions to specific specialised agencies and authorities, to ensure effective compliance.

The present SOP puts the entire burden of implementing sea turtle conservation measures in the field on District Collectors of coastal districts (page 6, para two of (2) of the SOP). Since District Collectors do not have expertise in turtle conservation, and lack the wherewithal to implement a wide range of measures on land and at sea, the cause of sea turtle protection and conservation may be better served if responsibilities are assigned as follows:

- (a) **For implementing TED in trawl nets, and regulating the use of gill nets and ray nets:** Department of Fisheries, Govt. of Tamil Nadu, since it is the department in charge of fisheries matters.
 - (b) **For sea patrolling and enforcement of the Tamil Nadu Marine Fishing Regulation Act (TMFRA):** Department of Fisheries, Indian Coast Guard and the Coastal Security Group.
 - (c) **For nesting beach patrolling and enforcement of the Wildlife (Protection) Act:** Tamil Nadu Forest Department (TNFD).
 - (d) **For enumeration of dead turtles:** TNFD, in collaboration with NGOs having a credible track record in sea turtle conservation.
 - (e) **For prevention of beach encroachments, monitoring of beachside lighting, and taking punitive action against those violating the CRZ:** TNFD and District Administration, working in tandem with the District Coastal Zone Management Authority.
3. It is further recommended that since the efficacy of measures taken for sea turtle protection and conservation cannot be judged in the short term, the State’s efforts should be **independently monitored and audited each year for at least 5 years.**

CHAPTER I

SEA TURTLES & THEIR CONSERVATION

Until the mid 1990s, seeing a dead turtle on the beach was a rarity. But as mechanized fishing has intensified in India, the sight of rotting turtle carcasses has become a common sight on the east coast every breeding and nesting season.

Radio telemetry studies conducted by the Wildlife Institute of India have shown that olive ridley sea turtles migrate in very large numbers from the Indian Ocean around Sri Lanka, to Odisha, every November, for the *arribada* or mass nesting (wherein thousands or tens of thousands of turtles come ashore simultaneously on select beaches, to nest on particular nights). These migrating turtles swim past Tamil Nadu and Andhra, but not all the turtles proceed to Odisha; many customarily nest on the beaches of TN and Andhra. Given the high density of sea turtles in the waters off the east coast from October to April every year, and the high incidence of mechanised fishery, thousands of turtles are captured incidentally in trawl and gill nets, resulting in death by drowning. The dead turtles are cast into the sea by the fishers, and are carried ashore by the waves.

Although this annual tragedy has been highlighted in the media year after year, the Central Government and coastal State Governments have turned a blind eye so far. The mitigating measures that may come about as a result of W.P. No. 1499 of 2015 may be the only hope of salvation for these marine reptiles.

Sea turtles are among the most vulnerable marine creatures on the planet, as they depend on both sea and land for their survival. While they spend the majority of their lives at sea, females have to seasonally come ashore to lay their eggs in the sand. Each female lays over a hundred Ping-Pong ball sized eggs at a time, and may lay more than one clutch during a single breeding season. The reason sea turtles lay so many eggs is because only one in a thousand hatchlings is estimated to survive to adulthood. The eggs laid on the beach are vulnerable to a variety of dangers, such as, beach erosion due to ports, harbours, fishing jetties, groynes and seawalls; beach encroachment by constructions and plantations; predation by jackals, pigs and dogs; and illegal egg harvesting by humans.

Those hatchlings that do manage to emerge from the sand have to surmount a plethora of dangers, particularly, disorientation due to seaside artificial illumination, which draws them in the opposite direction from the sea and results in their death. Of the one in a thousand that may make it to adulthood, if it is a female, it will return to shore 15 years or more later to lay its own eggs. Science has shown that sea turtles have a tendency to return to the *same* beach where they were born in order to lay their eggs. This is known as *natal homing*. The long-term survival of sea turtles therefore also hinges on the preservation of natal nesting beaches.

All five species of sea turtles that are found in Indian waters are considered endangered, and have been included in Schedule I of the Wildlife (Protection) Act, 1972. This ostensibly accords them the same highest level of protection as the tiger, India's national animal. In reality however, whilst about 50 Protected Areas have been designated as Tiger Reserves, and thousands of crores have been spent on the conservation of tigers, sea turtles have only received lip sympathy, at best. The truth is, sea turtles are no less ecologically significant than the tiger, and are essential to the health of the marine environment. Saving them, rather than being a burden on the state, will in fact ensure better fisheries.

Over millions of years, sea turtles have evolved and adapted to surmount the natural dangers to their survival, such as predation by birds and fishes. However, they have no defence against man-made dangers, which can only be mitigated through man-made solutions.

Impacts of mechanised fishing on sea turtles

Hundreds of sea turtle carcasses have been washing ashore on Tamil Nadu's beaches year on year. As the photographs at the end of this report illustrate, the main types of mechanised fishing gear that entrap and kill turtles are: trawl nets, gill nets and ray nets (set for catching ray fish).

Until about 40 years ago, virtually all fishing in Indian waters was done sustainably, by artisanal fishermen using traditional methods that posed no danger to sea turtles. However, in order to maximize seafood yields and boost export earnings, the government introduced mechanized fishing, and has nurtured it with numerous subsidies. As a result, the mechanized fishing industry has proliferated, and functions today as a largely unfettered activity. The boats relentlessly plunder the finite bounty of the sea with no thought for tomorrow, and all that seems to matter to those concerned is a good catch and maximum revenue. Coastal states proudly proclaim their growing seafood export earnings, while ignoring the unsustainable way the resources are being exploited.

As per the FAO Code of Conduct for Responsible Fisheries,

“6.1 States and users of living aquatic resources should conserve aquatic ecosystems. The right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources.

6.5 States and subregional and regional fisheries management organizations should apply a precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment, taking account of the best scientific evidence available. The absence of adequate scientific information should not be used as a reason for

postponing or failing to take measures to conserve target species, associated or dependent species and non-target species and their environment.

6.6 Selective and environmentally safe fishing gear and practices should be further developed and applied, to the extent practicable, in order to maintain biodiversity and to conserve the population structure and aquatic ecosystems and protect fish quality. Where proper selective and environmentally safe fishing gear and practices exist, they should be recognized and accorded a priority in establishing conservation and management measures for fisheries. States and users of aquatic ecosystems should minimize waste, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species.”

The recurring, largely avoidable death of thousands of sea turtles in the nets of mechanized fishing vessels is a stark symptom of the unsustainable functioning of the fishing industry in Tamil Nadu. It is vital that turtle mortalities are viewed as a dire ecological warning, and appropriate steps are taken to minimize and mitigate the negative impacts of the fishing industry on coastal biodiversity. The 45-day fishing ban that is instituted every year during the ‘fish breeding season’, while very welcome, must be urgently augmented by other measures on a war footing, as recommended in this report.

Seafood generates a substantial revenue in the State. For 2013-2014 Tamil Nadu’s marine fish production has been recorded as 4,32,265 tonnes, of which exports were 96,429 tonnes, valued at Rs. 5316.29 crores*. If even a fraction of the annual export earnings from this sector were to be allocated for sea turtle protection and conservation, many of the problems faced by turtles could be mitigated.

* Dept of Fisheries website

CHAPTER II

DETAILED INDEPENDENT AUDIT OBSERVATIONS ON THE SOP FOR THE PROTECTION AND CONSERVATION OF SEA TURTLES

Following the directions of the Hon'ble High Court of Madras in W.P. No. 1499 of 2015, the government has placed a Standard Operating Procedure (SOP) before the court. Subsequently, a compliance report too has been placed before the court.

Pursuant to the directions of the Hon'ble Court, the author of this report was requested to take up "the independent audit immediately on steps taken during the breeding season and the effectiveness of the Standard Operating Procedure finalized by the Government". As per these terms of reference, this section presents:

- Independent Audit observations on the SOP finalised by the Government for protection and conservation of sea turtles, and
- An audit of the steps taken by the Government for the protection and conservation of sea turtles during the 2015 – 2016 turtle breeding season.

After an analysis of the SOP, the following are the specific findings of this audit:

1. In the introduction to the SOP, it is stated: "***Capture and mortality of most of the sea turtles during trawling/gill netting is only incidental and not intentional.***"

Audit observation: While this may be true, such 'incidental' captures have become commonplace and have resulted in the deaths of tens of thousands of sea turtles along the east coast during the last decade and a half. Hence "incidental" capture can no longer be acceptable, especially when tried and tested methods for reducing such captures are available.

2. The introduction to the SOP also states: "***Furthermore, many fishing activities do not individually have much impact, but collectively with all other impacts contribute to a significant overall challenge to the recovery of sea turtle stock.***"

Audit observation: The large numbers of sea turtle carcasses washing ashore every year are a direct result of drowning in trawl nets and gill nets of mechanized fishing boats. These turtles would otherwise have been able to procreate for decades and perpetuate the species. So the direct killing of mature, breeding-age animals - intentional or incidental - is a serious threat that needs to be tackled urgently.

3. Para 4 of page 2 of the SOP states: "***Sea turtle conservation and management programmes should recognize the important contributions of fisheries to employment, income and food security and should be effectively integrated into fisheries management programmes. The development, design and implementation of turtle conservation and management measures should take into account the socio-economic aspects of fishers and fishing communities. These are dependent on marine***

fishery resources for their life and livelihood and balance should be sought between conservation and management of turtles on the one hand and sustainable livelihood and poverty alleviation, on the other.”

Audit observations: The preceding para seems to imply that fishers have unbridled rights over the ocean in pursuit of their “life and livelihood”, and that sea turtle conservation measures should be subservient to the virtually limitless exploitation of the sea by the fishing industry.

Page 3 of the SOP contains statements in the same vein as the paragraph quoted above, which raises the question whether this SOP is for the protection and conservation of sea turtles, as titled, or for the protection and conservation of the fisheries industry.

Writing in the reputed international journal, *Science*, 14 top scientists have predicted that if the current over exploitation of the oceans continues unabated, there will be a complete collapse of marine fisheries by the year 2050.

As Stephen Palumbi, Professor of Biological Sciences, and one of the paper’s co-authors, has observed: *The ocean is a great recycler. It takes sewage and recycles it into nutrients, it scrubs toxins out of the water, and it turns carbon dioxide into food and oxygen. But to provide these services, the ocean needs all of its working parts – the millions of plant and animal species that inhabit the sea.*

Sea turtles are a vital part of the oceans’ “working parts”. Saving them from a needless death is not just a moral and ethical imperative, but an ecological one as well. Saving sea turtles and other non-target marine species will help restore the health of the ocean, and thus help the fishing industry reap rich rewards in perpetuity. Conversely, the continued decimation of the ocean’s fauna will lead to the inevitable collapse of the fishing industry, rendering millions jobless. To paraphrase Mahatma Gandhi, the ocean has enough for everyone’s need but not for everyone’s greed.

In the context of turtle mortalities, it would be relevant to quote from the Indian constitution:

Article 51-A(g): **“It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.”**

Article 48-A: **“The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.”**

It may also be relevant to quote a judgment of the Supreme Court in I. A. Nos. 1433 and 1477 of 2005 IN WRIT PETITION (C) NO. 202 OF 1995:

“Environmental justice could be achieved only if we drift away from the principle of anthropocentric to ecocentric. Many of our principles like sustainable development, pol-

luter-pays principle, inter-generational equity have their roots in anthropocentric principles. Anthropocentrism is always human interest focussed and non-human has only instrumental value to humans...Ecocentrism is nature centred where humans are part of nature and non-human has intrinsic value. In other words, human interest do not take automatic precedence and humans have obligations to non-humans independently of human interest. Ecocentrism is therefore life-centred, nature-centred where nature include both human and nonhumans.”

4. *The first bullet point under 1(a) of the SOP on page 4 states that: “Turtle Excluding Device (TED) shall be fixed in all trawl nets wherever necessary to help escape of sea turtles from trawl nets during the turtle breeding season.”*

Audit observations: The above statement contains a contradiction of the Amendment to the TMFRA 1983 Rules, wherein, the Government has ordered that:

“(d) No trawl net shall be used without fixing Turtle Excluder Device (TED) before the Cod end during the specified period as may be notified by the authorized officer” (G.O. Ms. No 186, Animal Husbandry, Dairying and Fisheries Department (FS-4), dated 30th September 2015).

The words “wherever necessary” in the above-cited clause of the SOP appears to provide a loop-hole that is not contained in the amendment to the TMFRA Rules, which gives discretion to the ‘authorized officer’ only insofar as specifying the period during which TED should be used. The words “wherever necessary” must therefore be deleted if the government means business on the use of TEDs in trawl nets during the turtle breeding season.

Furthermore, the SOP does not specify the following:

- The kind of TED that is to be used, and the procedure for procurement, quality control and correct installation.
- A road map and timeline for installing TEDs in all trawl boats in the State.
- The number of trials planned to make trawl boat owners and operators familiar with procedures for fitting, using and regular maintenance of the TED, with protocols for the same.
- Protocols for monitoring and enforcement of TED use.

In the absence of all this, the above-cited amendment to the Rules of the TMFRA, while undoubtedly well meaning, will merely remain on paper, and turtles will continue to die in trawl nets.

Additional observations: It is recognized the world over that bottom trawling, which involves dragging weighted nets along the sea floor, is one of the most deleterious fishing practices, as it destroys or disturbs everything in its path, including sea grasses, coral reefs and rock gardens where young fish take shelter. In fact, bottom trawlers are regarded as the ‘**bulldozers of the sea**’, and several countries around the world have

banned the practice, to save their fisheries resources. These include, Indonesia, many states in the U.S.A., countries in the Mediterranean region of Europe and North Africa, and New Zealand.

At the **very least** all trawl nets in TN should be fitted with TEDs, as mandated by law, to allow turtles and other large, non-target species to escape unharmed.

5. *Bullet point two under 1(a) of the SOP states that: “The adjoining areas of sea upto 5 nautical miles from the identified nesting point shall be declared “No Fishing Zone” during the nesting and breeding season of turtles.”*

Audit observations: There is no logic for declaring a “No Fishing Zone” only in the adjoining areas of sea from “identified nesting points”, since turtles are found in the coastal waters of the entire state during the migratory season (October, November and April), and the breeding and nesting season (December to end of March). Therefore the “No Fishing Zone” of 5 nautical miles from the shore must extend to the entire coast of the State during the turtle migratory and breeding season. This will also make it more practical to enforce the “No Fishing Zone”.

It is noteworthy that even during its enactment in 1983, the TMFRA had a “no fishing zone” for mechanized boats up to 3 nautical miles from the shore along the entire Tamil Nadu coastline (Ref: 5(3) of Chapter II of the TMFRA).

This clause was included in the Marine Fishing Regulation Acts of several coastal states, to protect the rights of artisanal fishers, who cannot compete with the mechanized fishing boats. This extract from the Marine Products Export Development Authority (MPEDA) website makes the intent of this clause clear:

“There was an inter fleet conflict between the workers of traditional and mechanized fishing vessels, as a result of rapid expansion of mechanized fishing sector in Kerala in the midst of 1970s. This prompted the need for a legislation to safeguard the interest of traditional fishermen and conservation of fishery resources of the State. It was therefore considered necessary to enact a legislation providing for the regulation of fishing by fishing vessels in the sea along the coast line of the State. The Majumdar Committee 1979 recommended that Marine fishing regulation be legislative to protect the artisanal fishermen and preserve the fishery resources. Fisheries being a State subject, Govt. of India prepared a model bill and recommended each Maritime States to legislate the Acts. The Marine Fishing Regulation Act then enacted by one State after another starting with Kerala in 1980.”

Thus, the enforcement of the “No Fishing Zone” will benefit not only sea turtles, but also the State’s fisheries resources and artisanal fishers. However, the clause included in the SOP appears to ban **all fishing** in the “No Fishing Zone”. This will create unnecessary hardship to small-scale fishers operating non-motorized fishing craft without harming turtles. Therefore it must be spelt out that the proposed ban of fishing within 5 nautical miles of the coastline of Tamil Nadu during the turtle migratory and nesting

and breeding season **applies only** to mechanized boats, such as trawlers and large gill netters, as well as motorized boats with engines above 10 HP.

6. *Bullet point four under 1(a) of the SOP states that: “The Coastal Security Group and Indian Coast Guard in association with the Department of Fisheries shall ensure that potential nesting sites are sufficiently patrolled to prevent the operation of trawlers in contravention to the provisions of the Tamil Nadu Marine Fisheries Regulation Act 1983 during the Turtle Breeding period each year.”*

Audit observations: As in the rest of the SOP, definitions are lacking here too. The phrase “sufficiently patrolled” in the above clause is sufficiently ambiguous to render it practically useless. The SOP must clarify how much patrolling is “sufficient” on the basis of logic and reasoning.

Since fishing takes place every day during the turtle-breeding season, the SOP needs to spell out the frequency of patrolling required for the effective implementation of the provisions of the TMFRA.

Also, if three agencies, ie., the Coastal Security Group, the Coast Guard and the Fisheries Department are to be involved in sea patrolling, the SOP needs to spell out which agency will patrol which areas. It should generate a detailed schedule for patrolling so that the respective parties can be held accountable. If inter-departmental joint patrolling is to be undertaken, the protocol and command structure for the same must be clarified.

7. *Bullet points one to four under 1(c) of the SOP deal with beachfront Lighting Regulation Measures during the sea turtle nesting/breeding period.*

Audit observations: All the above-cited four bullet points are bereft of any specifics and are therefore not actionable. There are excellent publications available that illustrate and describe how beachfront lighting is to be shielded so as to not affect nesting turtles and hatchlings. These need to be codified in the SOP. Also, merely issuing a notice to beach resorts and beachside residences may not serve any purpose. Protocols for inspections, and penalties for non-compliance have to be specified and they must serve as enough of a deterrent to ensure compliance. (Details on minimizing impacts of beachfront lighting are to be found in the publication: ‘**Sea Turtle Conservation**’ – A GOI-UNDP Project Manual, 2003, which is available from Wildlife Institute of India, Dehra Dun).

8. *Para one of 2 (page 6) of the SOP, ‘Implementation and Coordination of Management Measures’, states that: “The respective Heads of the Departments concerned with this standard operating procedure shall coordinate and monitor sea turtle conservation measures to be implemented by the respective department in the state, with a clear mandate to reduce turtle mortalities. For effective implementation of conservation measures, the Commissioner of Fisheries and the Chief Conservator of Forest shall jointly convene coordination meeting of all con-*

cerned before the commencement of the turtle breeding and nesting season for formulating policy frame work, legal frame work and institutional frame work for the entire state. The coordination meeting shall be conducted two months in advance of the commencement of the Turtle breeding season and continue the review every two months till the end of the Turtle breeding season.”

Audit observations: It is hoped that following the first joint coordination meeting to be held before the 2016-2017 turtle breeding season, detailed protocols will be codified for TED procurement, TED trials, TED fixing, patrolling, enforcement of TMFRA, and training and capacity building of all stakeholders, to ensure effective reduction of turtle mortalities. Protocols are also needed to ensure that nesting beaches are safeguarded and that beach side illumination is curbed during the next sea turtle breeding season.

It is suggested however that **“two months in advance of the commencement of the Turtle breeding season”** is too late to start the planning, and that the planning should start in August every year, so that there is sufficient time to fine tune all procedures and protocols. Reviews of these measures must take place at least once a month, instead of every two months, till the end of the sea turtle breeding season.

CHAPTER III

AN AUDIT OF THE COMPLIANCE REPORT PRESENTED TO THE COURT AS WELL AS THE ACTION TAKEN REPORTS SUBMITTED TO THE AUDITOR

Although the Hon'ble Court, in its order dated 28.1.2016, had directed that an independent auditor be appointed to monitor the actions being taken for protection and conservation of sea turtles, the auditor was only approached vide letter dated 22.04.2016, at the fag end of the turtle nesting and breeding season.

The learned Amicus in his memo, dated 18.04.2016, has stated: **“it would have been ideal if the third party expert had also been engaged as part of the effort from the inception of the turtle migration and nesting period”**.

Since this was not done, the auditor was not in a position to do real time observations of the actions taken by the government prior to the date of his appointment.

1. In its Compliance Report, the Fisheries Department has stated that: **“The Department of Fisheries, Government of Tamil Nadu has taken extensive steps for the protection and conservation of sea turtles during the nesting and breeding season of the sea turtles which positively responded with a decrease in mortality rate.”**

Audit observations: There is no reliable data to corroborate the contention that there was a decrease in turtle mortality due to effectiveness of steps taken.

What is clear from the data available to the auditor, however, is as follows: although there are **4512 trawl boats** registered in Tamil Nadu as per records, only 231 TEDs were reportedly distributed, of which only 73 appear to have been actually distributed as per records submitted by the government. Furthermore, there is no evidence that any of these TEDs were installed or used routinely by those to whom they were distributed. Additionally, although there are 5892 registered mechanized boats in the state as per records, including trawlers and gill netters, only 6 offences were detected for fishing within the 3-nautical mile “no fishing zone” under TMFRA during the last sea turtle breeding season.

Given the above facts, it is unrealistic to attribute any perceived reduction in mortalities during the last season to the government's nascent efforts. Careful study and rigorous data collection for at least the next five years would be necessary to come to any firm conclusions.

In order to better understand the government's actions during the last turtle season, the auditor sent a questionnaire to the Commissioner of Fisheries, Government of Tamil Nadu, vide letter, dated 21.5.2016. The auditor's letter is appended as **Annexure 02** and the reply received from the Commissioner of Fisheries to the auditor's queries is appended as **Annexure 03**.

2. A specific question raised by the auditor regarding TEDs, and the answer received from the Fisheries Department are appended below:

How many trawlers have been fitted with a Turtle Excluder Device (TED) since the issuance of the G.O. MS. No.186, Animal Husbandry, Dairy and Fisheries (FS-4), of 30.09.2015, mandating the deployment of TED in all trawl nets in Tamil Nadu during the turtle breeding and nesting season?

Answer from Fisheries Department: *“A total of 231 TEDs were distributed to fishermen for conducting trials. However the efficiency of TED still to be proved as an effective tool for protecting turtle from trawl nets.”*

Audit observations: Audit would like to deal with the second part of the answer first. the Fisheries Department’s assertion that ***“the efficiency of TED still to be proved as an effective tool for protecting turtles from trawl nets”*** flies in the face of decades of research, development and use of TEDs in many countries around the world.

TEDs were first developed about forty years ago by the National Marine Fisheries Service of the United States of America, where they have been successfully used for over three decades. Use of TED in a trawl net allows turtles to escape unharmed while retaining most of the seafood catch in the net. However, since the TED that was developed in the U.S.A. was found to be not entirely suitable for use in India, the Central Institute of Fisheries Technology (CIFT) modified the design, after much R&D, to suit Indian trawl fishing. At this time TEDs are the best devices available worldwide for excluding turtles from trawl nets. Reproduced herewith is an extract from the website of the Central Institute of Fisheries Technology:

“Turtle Excluder Devices (TEDs) are recognized internationally as a convenient and effective measure for protecting sea turtles from trawling-related mortality. An indigenous design of TED was developed at Central Institute of Fisheries Technology, after extensive field trials off southwest coast and east coast, with focus on reducing catch losses, which is a cause of concern for trawler fishermen in adopting the device.”

The fact that the Fisheries Department is still questioning the efficacy of TEDs, despite the large body of available scientific evidence, is curious to say the least. The statement is particularly surprising in light of the fact that the TMFRA itself makes it mandatory to fix TEDs in trawl nets, and gives rise to the question as to whether the Fisheries Department has any real inclination to convince fishers to use the TED, or enforce its compliance.

Coming to the first part of the answer to the question posed by the auditor, the Fisheries Department has stated that, ***“A total of 231 TEDs were distributed to fishermen for conducting trials.”***

Audit observations: In support of the above statement, the Fisheries Department has produced a declaration by the Wildlife Warden, Chennai, dated 20/04/16, wherein it is stated: **“ To reduce mortality of Olive Ridley sea turtles during breeding season, use of TEDs by fishermen in trawler boats has been emphasized through various awareness programmes and also under the Tamil Nadu Biodiversity Conservation and Greening Project of Tamil Nadu Forest Department.”** Further, the Wildlife Warden, Chennai, has appended a breakdown giving the details of 61 fishers, along with registration numbers of their respective fishing boats, to whom TED was distributed in Chennai, and an additional 12 that were distributed to fishers in Villupuram District. So despite the claim that 231 TEDs were distributed, records produced show that only 73 have been distributed till date. **However, even in this, the auditor has noticed serious irregularities, as elucidated below:**

- a) Upon verifying the boat registration numbers given by the Tamil Nadu Forest Department (TNFD) with the register held with the Additional Director of Fisheries, Fishing Harbour Management Wing, Chennai, on 23.06.2015, it was seen that all 61 boat numbers listed by the TNFD are small fibre class boats using gill nets, as confirmed by the Fisheries Department (**Annexure 04**). TED is a specialised equipment meant specifically for fitting in trawl nets used by trawlers, as the statement by the TNFD itself acknowledges. Therefore, distributing TEDs to small, fibre class boat owners engaged in gill net fishery does not serve any purpose and is a waste of taxpayer’s money.
- b) After verifying the above, the auditor visited the Fishing Harbour in Royapuram, to conduct a field audit of the TEDs distributed. Two numbers of the said TEDs were found unused in a shed in the fishing harbour. When the auditor interacted with a few trawl boat owners present and enquired about the non-usage of the TEDs, they told the auditor that whereas the TEDs that were demonstrated and used for trials in January 2015 by the Fisheries Department (in collaboration with TREE Foundation, Central Institute of Fisheries Technology, and officials from the Tamil Nadu Forest Department), were made of good materials and approved by the CIFT scientist present, the TEDs that were distributed subsequently by the Tamil Nadu Forest Department were made out of substandard materials, and deviated from the CIFT-design TED in so many crucial ways as to render them ineffective even for conducting trials. The auditor closely examined the aforesaid two examples of TEDs distributed by the Forest Department and found that the steel hoop and slanted grid used in the TNFD-TEDs are made out of Mild Steel (MS), and were completely rusted. The CIFT design calls for stainless steel, which is rust proof. The stretched mesh size of the TED extension was found to be 70mm, instead of the 40mm specified by CIFT (**Annexure 05**). Additionally, the three plastic floats specified by CIFT were not seen to be included. Such deviations from the CIFT design are likely to result in failure of the

TED to function properly (N.B. the auditor borrowed one of the above-mentioned TEDs for a detailed analysis and can produce it when needed).

For TEDs to work as a viable solution, the device itself should be functional, and manufactured to strict CIFT specifications; trawl fishers need to be convinced that using TEDs is in their interest through extensive demonstrations of the TED at sea. Fishers then need to be trained by experts for fitting the TED to their trawl nets, and taught how to use the TED-equipped net in the sea correctly, as well as how to maintain it properly on a daily basis.

The Commissioner of Fisheries has stated that only one demonstration of the usage of TEDs was provided (on 20.01.2015) and two field trials were conducted on (21st and 22nd January 2015) at Kasimedu Fishing Harbour, Royapuram, Chennai. Given that TED is an unfamiliar device that is being introduced to fishers for the first time in the State, such meagre trials and demonstrations are highly inadequate for familiarizing and convincing fishers of the efficacy of the device.

Implementation of TED in trawl nets, besides being mandatory under TMFRA, is also one of the key measures included in the SOP to reduce sea turtle mortalities. However, there is little chance of it succeeding if TEDs don't conform strictly to CIFT specifications and are provided to gill net fishers instead of trawl boat operators. TED implementation also cannot succeed without providing proper expert training to trawl fishers in use of the device, and ensuring continuous monitoring and enforcement. Slipshod efforts make a mockery of the TMFRA, as well as the government's stated intent to protect and conserve sea turtles, and should be avoided.

Figure 1 (Below): A trawl net fitted with a **CIFT-designed** TED being inspected by sea turtle expert, Dr. Bivash Panday, of the Wildlife Institute of India, in Paradip Fishing Harbour, Odisha. Note the Marine Grade Stainless Steel metal hoop and angled grid, as well as the perfectly sewn net of the correct mesh size (Photo by: Shekar Dattatri).



Figure 2 (Below): TED distributed by the TNFD to fishers in Chennai in March 2015. Net is haphazardly sewn. Hoop and grid are made of Mild Steel instead of Marine Grade Stainless Steel, and the TED does not conform in many ways to tested CIFT specifications, including, crucially, the mesh size. (Photo courtesy: Member, Chennai-Chengai Singaravelar Trawl Owner's Association, Royapuram, Chennai).



CHAPTER IV

DETAILED AUDIT RECOMMENDATIONS

Given that the SOP has many lacunae, audit makes the following recommendations:

1. A nodal Task Force that also includes NGO members working in the field of turtle conservation in the state should be formed immediately for revising the SOP for turtle protection and conservation. Meticulous details on policy framework, legal framework and institutional framework, as well as operational protocols for reducing fishing related mortalities and other dangers faced by sea turtles, should be worked out. The SOP should include relevant suggestions made by the learned Amicus, as well as those submitted to the government by NGOs.
2. Fixing accountability for specific actions to specific agencies, as follows:
 - (a) **Responsibility for reducing fisheries-related sea turtle mortalities:** Department of Fisheries, Govt. of Tamil Nadu, since it is the department in charge of fisheries matters.

As per an Amendment to the Rules of the Tamil Nadu Marine Fishing Regulation Act, 1983 (TMFRA), dated 30th September 2015, the Government has ordered that:

No trawl net shall be used without fixing Turtle Excluder Device (TED) before the Cod end during the specified period as may be notified by the authorized officer"

The Department of Fisheries should ensure the procurement, trials, fixing and proper use of the Central Institute of Fisheries Technology (CIFT)-designed Turtle Excluder Device (TED), manufactured as per strict CIFT specifications, in all trawl boats operating in the State. **If properly implemented, this measure can substantially reduce trawling-related sea turtle mortalities.**

The audit recommends that any TEDs distributed should go through stringent quality control to ensure that they meet all the CIFT specifications of material and measurements. No TED should be handed out without a thorough training for the recipient boat operator in its fitting, use and proper maintenance. If TEDs are distributed to trawl boat owners either free of cost or at a subsidized rate, an indemnity bond must be executed by the beneficiary stating that the TED will be used throughout the specified turtle breeding and nesting season. Penalties for breach of this provision must be spelled out in the said bond.

- (b) **Responsibility for sea patrolling, seizure of banned fishing gear and enforcement of the Tamil Nadu Marine Fishing Regulation Act (TMFRA):** Department of Fisheries, Indian Coast Guard and the Coastal Security Group.

Bullet point two under 1(a) of the SOP states that: "The adjoining areas of sea upto 5 nautical mile from the identified nesting point shall be declared "No Fishing Zone" during the nesting and breeding season of turtles.

Audit finds that the SOP does not contain any specific procedure on notifying the public and boat operators on the turtle breeding season and the "No fishing Zone" limits. The Auditor therefore recommends that it must be the responsibility of the Department of Fisheries to make public announcements prior to the commencement of the sea turtle breeding season to ensure that mechanized boat operators are informed in advance of the "No Fishing zone" through appropriate notifications/circulars under TMFRA.

Audit finds that the SOP does not contain any specific protocol on enforcement of use of TED as well as the "No fishing zone" in the 5 nautical mile zone. In order to ensure strict enforcement, the auditor recommends that in addition to officers of the Fisheries Department, officers of the appropriate rank of the Indian Coast Guard and Coastal Security Group must be officially empowered by a notification issued under the **TMFRA** to take action against errant mechanized boats fishing in the "No Fishing Zone" within 5 nautical miles from the shore during the turtle breeding and nesting season, as well as trawlers operating without TED in their nets (**Annexure 06**, fax from Commandant, Coast Guard regarding this).

It is the considered view of that auditor that strict enforcement of the said "No Fishing Zone" for mechanized boats, such as trawlers and gill-netters, is an absolute must to bring down sea turtle mortalities substantially.

Special note: Since turtle densities are higher in coastal waters **around estuaries**, these areas in the state should have a permanent patrolling presence throughout the turtle breeding and nesting season.

Ray fish nets have proven to be extremely dangerous to turtles, often leading to the deaths of scores or even hundreds of turtles in a single net. The use of these nets should be completely banned during the entire turtle breeding and nesting season and appropriate notifications should be issued to this effect under TMFRA.

- (c) **Responsibility for patrolling of nesting beaches and protection of eggs:** Tamil Nadu Forest Department (TNFD). TNFD has a responsibility to protect sea turtles under the Wildlife (Protection) Act, 1972 (WLPA). Section 9 of the said Act prohibits hunting of Turtles as they are listed in Schedule I. Section 2(16) of the WLPA defines hunting as killing or damaging or disturbing the eggs or nests and every attempt to do so. Audit revealed that the SOP does not specify the exact procedures to ensure implementation of beach patrolling and enforcing of the WLPA with regard to turtles. The auditor therefore recommends that the Chief Wildlife Warden, who is the Statutory Authority under the said Act, must constitute patrolling teams to prevent: (i) killing of turtles for consumption that is reportedly still prevalent in some southern coastal districts of Tamil Nadu; (ii) beach and nesting site encroachments, and (iii) illegal harvest of eggs. NGOs that have a credible track record in sea turtle protection and conservation may be involved for jointly patrolling beaches.
- (d) **Responsibility for enumeration of dead turtles:** TNFD, in collaboration with credible NGOs. Audit finds that the SOP does not contain a clause for enumeration of dead turtles. Audit recommends that a foolproof methodology for recording and enumerating turtle mortalities occurring every season should be devised and included in the SOP. Accurate, year-on-year enumeration of turtle carcasses can provide one metric for the success or otherwise of conservation efforts.
- (e) **Responsibility for prevention of beach encroachments, monitoring of beachside lighting, and taking punitive action against those violating the CRZ:** Audit finds that the SOP does not place any specific responsibility on the District Administration to take punitive action for encroachment of nesting beaches, beachside illumination and violations of the CRZ. It is therefore recommended that the SOP must contain a specific joint protocol for this, with the Chief Wildlife Warden and Collector working in tandem with the District Coastal Zone Management Authority.
3. It is further recommended that since the efficacy of measures taken for sea turtle protection and conservation in the state cannot be judged in the short term, this programme should be **independently monitored and audited each year for at least 5 years.**

CHAPTER V

CONCLUDING REMARKS

Whether a turtle is killed incidentally or deliberately is immaterial, since either way, the turtle is dead. When hundreds or thousands die in 'incidental' captures every year, it warrants remedial action.

Tried and tested solutions to this problem exist, since other countries also grapple with the same problem, and many have found a way to reconcile fishing interests with sea turtle conservation. What is required is utmost sincerity in the implementation of available methods of reducing unwanted by-catch, particularly, of sea turtles.

Turtle mortalities can only come down with very strict implementation and enforcement of:

- (i) Use of the indigenous CIFT-TED in all trawl boats operating in Tamil Nadu's coastal waters.
- (ii) Regulating the use of large-mesh size gill nets that can entrap turtles, by modifying their depth of deployment, areas of usage and seasons of usage.
- (iii) Banning of Ray fish nets, which are extremely dangerous to turtles, during the turtle breeding and nesting season.
- (iv) Strict enforcement of the "No Fishing Zone" for mechanized fishing boats as provided for in the TMFRA.

Saving sea turtles is a complex undertaking, and requires a clear understanding of sea turtle biology, as well as all the factors that affect their survival on land and at sea. It also requires an excellent understanding of the mindset of fishers. For any conservation efforts to succeed, all the agencies involved need to understand the gravity of the task ahead, and put in a whole-hearted effort, before positive results can be expected.

Since the government provides subsidies and incentives to the fishing industry for its growth, it also has a responsibility to ensure sustainable fishing practices, particularly to minimise by-catch of non-target species such as sea turtles, as per 6.6. of the FAO Code of Conduct for Responsible Fisheries.

All solutions should be based on sound science, and implemented in a transparent manner, with independent monitoring and evaluation. A vast body of peer reviewed work on sea turtles and their conservation already exists in the public domain, and must be made use of.

Furthermore, for any SOP on sea turtle conservation to be effective, it must also incorporate the extensive knowledge and experience on turtles and their conservation that is available with NGOs, scientists and conservationists outside the government system.

Finally, the object of the SOP should not be to simply mollify the court, or placate concerned citizens, but to address the root causes of the problem, with a genuine desire to bring down the horrendous turtle mortalities witnessed year after year.

The photograph below shows a NGO volunteer numbering turtle carcasses drowned in trawl fishing nets in Nellore District of Andhra, just north of the Tamil Nadu border. This was reportedly the result of TN trawlers fishing near the Penna estuary. A total of 800 dead turtles were found during two consecutive days, on 22nd and 23rd February 2014 (Photograph and information: TREE Foundation, Chennai).

The only way to avoid such mortalities is to strictly enforce the ‘no fishing zone’ of 5 nautical miles from the shoreline for all mechanized fishing boats, as well as fix TEDs in all trawl nets as per provisions contained in the TMFRA. When combined, these two measures can greatly reduce trawling-related mortalities.



APPENDIX - SEA TURTLES MORTALITIES ON THE EAST COAST

The “incidental” capture of olive ridleys in the ‘cod end’ of a trawl net in Odisha. The fishing gear and mechanized fishing practices in Odisha are virtually identical to those prevailing in Tamil Nadu, as are the problems faced by sea turtles.



Not only is this a needless death for the turtles, it is also a loss of fishing effort. There is barely any space in the net for fish, and the weight of the turtles crushes whatever seafood remains, diminishing its market value (Photos by: Dr. Bivash Pandav).



Turtles trapped in a Gill net. In order to disentangle them without damaging the net, fishers typically club the turtles on the head to kill them, and then cut off the flippers. The discarded carcasses then wash ashore.



Net set for Ray Fish (below) can trap scores and even hundreds of turtles in one go, as in the picture below. The use of ray nets must be banned during the sea turtle breeding season every year (Photo by: Dr. Biswajit Mohanty, Wildlife Society of Orissa).



Sea turtles need broad, sandy beaches to lay their eggs. Unfortunately, indiscriminate building of ports, jetties, groynes and seawalls, is leading to erosion of nesting beaches .



Seawalls like the one below on the TN-Pondy border, form an insurmountable barrier for nesting sea turtles. (Photos by K. Ramnath Chandrasekhar).



Auditor's credentials:

Shekar Dattatri has been observing sea turtles on the east coast of India since 1976, when he started working in the Madras Snake Park Trust as a volunteer.

In 2002, alarmed by news reports of thousands of dead turtles washing ashore on the beaches of the Odisha, he made several forays to the state to understand, photograph and videograph olive ridleys in the sea and on shore. His documentary, **'The Ridleys Last Stand'**, about olive ridleys in Odisha and their fate at the hands of the mechanized fishing industry closely examines the different types of fishing and the impact they have on sea turtles. Dattatri spent twelve months between January 2001 and April 2003 to make this comprehensively researched film. During his time, he frequently accompanied mechanized boats such as trawlers and gill-netters on routine fishing expeditions to understand sea turtle by-catch issues. He also travelled on board Coast Guard vessels, CGS JIJABAI and CGS VAJRA to understand the role played by the Coast Guard in sea turtle protection. He has participated in several workshops on sea turtles and their conservation during the last three decades.

Besides making over 25 documentaries on wildlife and conservation during the last 30 years, Dattatri has also written editorials and articles for leading newspapers and magazines on a range of wildlife issues, and is the author of three childrens books on nature, including **'The Riddle of the Ridley'**, about the olive ridley sea turtle. He has delivered hundreds of lectures and presentations on nature conservation to varied audiences, including civil service probationers at the Lal Bahadur Shastri Academy in Mussoorie, and judicial officers at the Tamil Nadu Judicial Academy. He has taught short courses at the National Centre for Biological Sciences, Bangalore, and has been an invited speaker on wildlife conservation for IAS and IFS officers' refresher courses.

Between 2007-2010, Dattatri served as a Member of the National Board for Wildlife, the apex advisory body to the Government of India on wildlife conservation. For the past three years he has served as a Member of the State Board for Wildlife, Tamil Nadu. In November 2009 he was part of an expert committee constituted by the National Tiger Conservation Authority to audit the functioning of the Nagarjuna-Srisailam Tiger Reserve in Andhra Pradesh.

ANNEXURES List

1. Annexure 01: Letter from Commissioner of Fisheries to auditor
2. Annexure 02: Letter to Commissioner of Fisheries from auditor
3. Annexure 03: Reply from Commissioner of Fisheries to audit queries
4. Annexure 04: Letter from AD, Fisheries, to auditor
5. Annexure 05: CIFT-TED specifications
6. Annexure 06: Fax from Commandant, CG to Commissioner, Fisheries

HIGH COURT OF JUDICATURE AT MADRAS
W.P. No. 1499 of 2015
(SUO-MOTU PIL WP)

COMPLIANCE REPORT

IN THE HIGH COURT OF JUDICATURE AT MADRAS

(SPECIAL ORIGINAL JURISDICTION)

W.P.No. 1499 of 2015 (Suo-Motu PIL)

1. The Secretary to Government,
Animal Husbandry, Dairying & Fisheries,
Secretariat, Chennai - 600009.
 2. The Commissioner of Fisheries,
Department of Fisheries
D.M.S.Complex, Teynampet,
Chennai - 600006.
 3. The Ministry of Environment and Forest,
Rep by its Secretary, Union of India,
Paryavaran Bhavan,
CGO Complex, Lodhi Road,
New Delhi - 110003.
 4. The Secretary to Government,
Department of Forest
Govt. of Tamil Nadu,
Secretariat, Chennai - 600006.
 5. The Coastal Security Group,
Administrative Building,
DGP Office Complex,
Chennai - 600004.
 6. The Indian Coast Guard,
HQs No-5, GM Pettai Road,
Royapuram, Chennai - 600013.
 7. The Central Marine Fisheries Research Institute,
Abraham Madamakal Road,
Marine Drive, Ernakulam,
Kerala.
 8. The Tamil Nadu Coastal Zone Management Authority,
Rep by its Member Secretary,
Panagal Building, Saidapet,
Chennai.
- Respondents

**COMPLIANCE REPORT IN RESPECT OF
ORDER OF THE HON'BLE HIGH COURT OF JUDICATURE AT MADRAS
DATED 11.08.2016 AND MEMO FILED BY THE AMICUS CURIE
ON W.P. NO. 1499 of 2015**

Introduction:

A news article MURDER MOST FOUL: 35 turtles washed ashore" with the sub-heading as "Fisheries Department says it doesn't have resources to crack down on erring trawlers" was published in the Times of India, Chennai edition on 20.01.2015. Following this a Suo-moto PIL W.P. No. 1499 of 2015 was filed by the Hon'ble Chief Justice of High Court of Madras praying for issuance

of Writ of Mandamus directing the Respondents i.e., the Secretary to Government, Animal Husbandry, Dairying and Fisheries Department and the Commissioner of Fisheries to take action against erring fishermen and ensure safety living of the sea animals including sea turtles. Further, as per the order passed by the Hon'ble High Court on 09.02.2015 the following were also impleaded as respondents:

- 1) The Secretary, Ministry of Environment and Forests, Govt of India
- 2) The Secretary to Government, Dept of Forest, Govt of Tamil Nadu
- 3) The Coastal Security Group, Chennai
- 4) The Indian Coast Guard, Chennai
- 5) The Central Marine Fisheries Research Institute, Cochin
- 6) The Member Secretary, Tamil Nadu Coastal Zone Management Authority, Chennai

Case Status:

The case came up for hearing on 11.8.2016 before the Hon'ble High Court of Judicature at Madras. After hearing the arguments, the Hon'ble Chief Justice of High Court, Madras adjourned the case to 07.11.2016.

It is submitted that the Learned Amicus Curie has filed a memo before the Hon'ble High Court on 29.09.2016. In the memo, the Learned Amicus Curie has made certain observations / suggestions on the compliance report filed by the Fisheries Department before the Hon'ble High Court on 27.09.2016.

Compliance

In accordance with the memo filed a memo before the Hon'ble High Court on the case WP no.1499 of 2015, the compliance report is submitted for favour of kind perusal of the Hon'ble High Court of Madras.

Observation / suggestion of the Learned Amicus Curie

- 1) *The migratory, breeding and nesting period of sea turtles commences from October – November every year and continues upto the end of April. It is therefore necessary that the regulation of fishing should commence from November every year and not from January.*

Remarks of the Department

The unique phenomenon of arribada or mass nesting occurs regularly every year during the January- April. It was first brought to light by Dr. Bustard in 1976 (Ref:M.Rajagopalan and N.G. Menon- CMFRI report enclosed The Sea turtles viz., Olive ridleys have an annual nesting cycle and they emigrate into the Indian Coastal waters by November. The arribada often takes place twice a year, early January and early April of every year (Das 1998). Further it was also reported that mass nesting occurs in two batches, the first major nesting occurs during Jan to Feb and 2nd minor nesting in March of every year.

Copies of published reports on the subject is enclosed as Annexure-1.

The CMFRI has identified the potential nesting and breeding sites of sea turtles along the coast of Tamil Nadu. The CMFRI has published various reports on Sea turtles and in the report, it was clearly mentioned that **the nesting and breeding season mostly occurs (peak season) from January to April of every year. Sporadic migration of turtles only occurs between October and December. This migration doesn't occurs close to the shore.**

In the G.O.Ms.No.35, Municipal Administration and Water Supply (MCI) Dept dated:31.10.2011, issued orders regarding switching off the lights erected on the mast all along the coast of Chennai district, January to April of every year is the breeding season of sea turtles. (Annexure – II)

Hence, in accordance with the report of CMFRI and the G.O. cited above, Notification was issued by the Department regarding prohibition of fishing by mechanized fishing vessels, motorized country crafts and those using mechanized fishing techniques in a radius of 5 (five) nautical miles around the potential nesting and breeding sites from January to April of every year.

Prohibiting the fishing within 5 NM area for a longer duration is also not possible as these areas are used for fishing by traditional fishermen for their livelihood. Any fishing ban within 5 NM will severely affect the livelihood propositions of traditional fishermen who forms the poorest of the poor in the society. The notification already issued by the Government will serve the intended purpose and hence, issue of notification regarding regulation of fishing from November every year doesn't arise.

Observation / suggestion of the Learned Amicus Curie

- 2) *The notification regulates activities only within 5 nautical miles of "potential nesting sites" and has also provided a list of villages covered in each coastal district. The Notification has failed to account for the fact that olive ridley turtles travel to the same beach where they were born to nest and that the east coast is the migratory route for these turtle to reach Andhra Pradesh, Orissa etc. Therefore the entire coast will have to be protected and regulated during this limited period and not just the "potential nesting sites". This will also reduce problems and issues related to patrolling and enforcement and aid in uniform enforcement of the regulation. It is also seen that several coasts where nesting has been observed and documented by various organizations have not been listed in the notification. Therefore it is necessary that the entire coast of Tamil Nadu is protected in this regard.*

Remarks of the Department

As directed by the Hon'ble High Court of Madras on 11.08.2016, the notification to protect and conserve the sea turtles during nesting and breeding season was issued on par with the notification issued by the Govt of Odisha. The Notification of Govt of Tamil Nadu is prohibiting fishing by mechanized fishing vessels, motorized country crafts and those using mechanized fishing techniques in a radius of 5 (five) nautical miles around the potential nesting and breeding sites from January to April of every year.

The Govt of Odisha, the state which has the highest turtle mortality has imposed No fishing zone only in the identified nesting sites and not for the entire coastal areas of state of Odisha.

Majority of the turtle mortality has been reported along the identified potential nesting sites on the coast. No mass mortality has been reported all along the coast of Tamil Nadu. Hence prohibiting the fishing along the entire coast of Tamil Nadu doesn't arise. Hence, the CMFRI and Forest Department has identified the potential nesting sites and authenticated the same with field level data. Hence the potential sites identified by the nodal agencies such as CMFI and Forest department have been used in the Notification. Moreover an area in 5 NM (ie. 10 KM) radius of each potential nesting site has been prohibited for fishing which absorbs and breeding and nesting that occurs adjacent to the identified potential nesting sites and covers the entire turtle breeding and nesting zone of the districts identified. Hence prohibition of fishing along the entire coast of Tamil Nadu does not arise.

Observation / suggestion of the Learned Amicus Curie

- 3) *To finalize the design and fabrication of Turtle Excluder Device, representatives from Non Govt organizations working on sea turtle conservation shall be included in the committee.*

Remarks of the Department

The committee constituted to finalize the design and fabrication of TED is self sufficient as it includes all stakeholders viz., officials from Forest, Fisheries departments, representative from mechanized fishing boat association, expert in fabrication of net, Scientist from CIFT, concerned with it. It is worth mentioning here that the committee in its meeting dated 22.09.2016, (Annexure - III) has unanimously resolved to entrust the responsibility of fabrication of TEDs with a leading NGO so appointed by Government who has the required working experience in the turtle conservation.

Hence as suggested by the Amicus, the experience of NGO can be utilized during the fabrication of TEDs. Hence, reconstituting the committee doesn't arise. The Expert Committee has been requested to take necessary steps to finalize the efficient design of TED at the earliest.

Observation / suggestion of the Learned Amicus Curie

- 4) *To frame a comprehensive SOP, so that adequate measures can be taken in the next migration and nesting season.*

Remarks of the Department

The Standard Operating Procedure (SOP) for conservation and protection of sea turtles was framed after the detailed discussions with the concerned line departments and stakeholders.

Since the approved SOP contains all the vital parameters for the conservation and protection of sea turtles, as suggested by the Independent auditor, the responsibility of officers involved in turtle conservation will be issued by an Executive Order from the department concerned.

Accordingly, during the breeding season of sea turtles the patrolling within 12 NM will be carried out by the Coastal Security Group in coordination with the line department viz., Forest and Fisheries and the area beyond 12 NM patrolling will be carried out by the Indian Coast Guard. Further, Department of Fisheries doesn't have any vessels for patrolling in the sea.

The SOP framed has all the vital parameters for the conservation and protection of sea turtles. However the observations made by the independent auditor will be taken into consideration and modification required if any will be included in the SOP after arriving deliberations between various agencies involved in Turtle conservation.

II. As stipulated in the Standard Operating Procedure (SOP), a State level co-ordination meeting was convened by the Principal Secretary, Environment & Forest Department on 19.10.2016 in which all vital Departments viz., Fisheries, Forest, Municipal Administration, Coastal Security Group, CMFRI were participated. All the departments were instructed to implement the Standard Operating Procedure (SOP) and initiate necessary action for the protection and conservation of sea turtles.

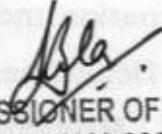
Further it is submitted to the Hon'ble High Court of Madras that, all possible efforts has been taken by the Department of Fisheries for the protection and conservation of Sea turtles during the ensuing nesting and breeding season which commences from January 2017.

As a preparatory measure for conservation and protection of Sea Turtles, the authorized officers / Coastal Asst Director of Fisheries has been entrusted in the responsibilities for the implementation of the SOP and also instructed to initiate the following activities:

1. Initiate management measures through active participation of fishers and fishing communities in nesting sites viz., reducing fishing and allied fishing activities and human interference in the area.
2. Conduct awareness campaigns in fishing villages by involving officials from Forest Department, MFB owners' associations, FCS presidents, Village presidents and Village Panchayats.
3. Issue necessary instructions to the fishers to avoid fishing by using gill nets during breeding and nesting season of sea turtles.
4. To implement the G.O.Ms.No.146, Animal Husbandry, Dairying and Fisheries (FS-3) Department, dated 27.09.2016, by prohibiting fishing by mechanized fishing boats and motorized country crafts in the area upto 5 nautical miles into the sea corresponding to the potential nesting sites.
5. The Assistant Director of Fisheries/Authorised Officers have been instructed to coordinate with the Coastal Security Group authorities at district level for the joint patrolling during the breeding and nesting season of sea turtles on par with SOP and also to prevent fishing in the area upto 5 nautical miles into the sea corresponding to the potential nesting sites by mechanized fishing boats and motorized country crafts, in addition to the implementation of TNMFR Act 1983.

Based on the above facts, it is humbly prayed that this Hon'ble High Court of Madras may kindly accept the compliance report and pass suitable orders in WP no.1499 of 2015 (Suo-motu PIL) and thus render justice.

Dated at Chennai on this
day of October 2016


COMMISSIONER OF FISHERIES
CHENNAI-600 006.

Commissioner of Fisheries 3/8

Sea Turtle Nesting Data, Alambarai 2010 to 2022						
S.No	Year	No. of Nests	No. of Eggs	No. of Hatchlings	No. Undeveloped	No. of Dead Hatchlings
1	2010-11	5	477	353	69	55
2	2011-12	10	1046	408	541	97
3	2012-13	34	4115	3210	576	329
4	2013-14	28	3060	2477	313	270
5	2014-15	23	2587	2153	314	120
6	2015-16	22	2394	1786	424	189
7	2016-17	36	3942	3022	505	415
8	2017-18	64	7697	6668	643	386
9	2018-19	37	4648	3867	641	140
10	2019-20	28	2862	2512	208	142
11	2020-21	25	2490	2367	112	11
12	2021-22 So Far	74	2679+Insitu	2176	284	210
	Total So Far	386	37997	30999	4630	2364

CENTRE FOR ENVIRONMENT, HEALTH & SAFETY

CENTRE FOR ENVIRONMENT, HEALTH & SAFETY
DEPARTMENT OF CIVIL ENGINEERING

Environmental Impact Assessment Organization



Centre for Environment, Health & Safety (CEHS) was established in 2009 as an exclusive Research & Industrial Consultancy organ of Department of Civil Engineering. CEHS soon has become an accredited Environmental Impact Assessment (EIA) Consulting Organization in 2012 for Ministry of Environment, Forests & Climate Change.

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CEHS has working arrangement with IIT-M, ITCOT and DHI India for jointly operating EIA consultancy projects.

CEHS is presently doing Environmental Consultancy for World Bank (WB) funded project for Tawi River Flood Management, at Jammu & Kashmir, in collaboration with Aquologus, Portugal.

CEHS apart from the good book list of several nodal agencies like State Industrial Promotion of Tamilnadu, it got entered in the Consultant Management System (CMS) of Asian Development Bank (ADB).

TEAM CEHS ACCREDITED EXPERTS Under NABET for EIA Studies by QCI, GoI			
MENTOR			
	Dr. G.B. Jaiprakash Narain formerly Director Centre for Environmental Studies, Anna University		
EIA COORDINATORS			
	Dr. V. Nehru Kumar Professor & Director	31	Industrial Estates Solid & Hazardous Solid Waste Port & Harbors Hydro Electric & Irrigation Biomedical Solid waste
	Dr. G.R. Senthil Kumar Professor, Earth Sciences	1	Mining
FUNCTIONAL AREA EXPERTS			
	Dr. V. Nehru Kumar Professor, Civil Engg	Solid Waste Management	
	Dr. M. Rajendiran Professor, Civil Engg	Air Quality Modelling & Monitoring Air Pollution	
	Dr. N. Manikumari Professor, Civil Engg	Water Resources	
	Dr. B. Asha Associate Professor, Civil Engg	Water Pollution	
	Dr. C. Elanchezhian Professor, Zoology	Ecology & Biodiversity	
	Dr. V. Imayavaramban Professor, Agriculture	Soil Conservation	
	Dr. R. Saravanan Professor, Chemical Engg	Risk Analysis & Hazard Assessment	
	Dr. N. Ravi Shankar Assistant Professor, Civil Engg	Land Use	
	Dr. K. Ravi Shankar Professor, Population Studies	Socio- Economics	
	Dr. R. Balamurugan Assistant Professor, Civil Engg	Noise	

Dr. Nehru Kumar Vaithilingam Professor & Director Accredited EIA Coordinator & FAE CONSULTANCY PROJECTS CLIENTELE, Since 2015-16		
2015-16		
1	EIA/EMP SIPCOT Industrial Complex, Tuticorin	SIPCOT Limited Government of Tamilnadu
2	EIA/EMP SIPCOT Industrial Complex, Tindivanam	SIPCOT Limited Government of Tamilnadu
3	EIA/EMP SIPCOT Industrial Complex, Manaparai	SIPCOT Limited Government of Tamilnadu
4	TSDF Narasangapura Industrial Area Karnataka	Century Eco Technologies Private Limited
5	National Highways Villupuram/Trichy/Madurai	National Highways (NHAI) Government of India
5	Tuna Fishing Harbor Government of Tamilnadu	Vir Aqua, Bangalore
6	EIA/EMP FLC, Kovalam Government of Tamilnadu	Department of Fisheries Government of Tamilnadu
7	EIA/EMP SPS, Mandalkadupudur	Public Works Department Government of Tamilnadu
8	Waste Assessment Study Impact Analysis	Strides Shasun Limited Cuddalore
2016-17		
1	EIA/EMP Cuddalore Port- Capacity Expansion	Tamilnadu Maritime Board Government of Tamilnadu Cuddalore
2	EC & CRZ Clearance Four Location- FLC/FH Andhra Pradesh	Vir Aqua, Bangalore
3	CRZ Clearance RA/DMP/Marine Biological Sensitivity Studies Cuddalore Port- Capacity Expansion	Tamilnadu Maritime Board Government of Tamilnadu Cuddalore
4	EIA/EMP Integrated Textile Industrial Complex, Ramanathapuram	SIPCOT Limited Government of Tamilnadu
5	Revamping of Effluent Treatment Plant-CBMWTF Palakkad	IMAGE-IMA Kerala
6	DPR Preparation-CBMWTF Palakkad	IMAGE-IMA Kerala
2017-18		
1	ONGC Oil Field, Gujarat Dredging Impact- EIA/EMP	Department of Coastal; Engineering IIT-M
2	Bay Characterization- Coastal Modelling	Jayawant Infrastructures Private Limited Mumbai
3	EIA/EMP Fishing Harbour, Kanyakumari Department of Fisheries Government of Tamilnadu	Geo Foundations & Structures Private Limited Chennai
4	ETP Adequacy Studies	Daniel Barrels Cuddalore
5	CRZ Consultancy EIA/EMP Studies	Lashkari & Bhaterna Infra projects Bombay
6	EIA/EMP CRZ Clearance- Jetty, Kanyakumari	Tamilnadu Maritime Board Government of Tamilnadu
2018-19		
1	EIA for Shoreline Protection Structures Poonthurai	Public Works Department Nagerkoll
2	Tawi River Management plan	Aquologus-Oiltech JV World Bank Project Government of Jammu & Kashmir
3	ToR Consultancy Polymer Industrial Park	SIPCOT-TIDCO JV Government of Tamilnadu
4	Sailors Academy State Sports Department	IIT-M Chennai
5	Nambiar Nagar Fishing Harbour Nagapatinam	Department of Fisheries, Government of India Under PPP Nambiar Nagar Gramma Mandaram Nagapatinam

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CHAIRMAN

Prof. Murugesan Velayutham
Vice Chancellor

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ANNEXURE 63

Yogeshwaran Amarneethi <yogeshwaranadv@gmail.com>

Joint Committee Constituted by the Hon'ble NGT (SZ) in the matter of Appeal No.14 of 2022 (SZ) filed by challenging the Environmental and CRZ Clearance granted to fishing harbors at Alamparaikuppam, Chengalpettu and at Azhkankuppam, Villupuram.

RO CHENNAI <roefccc1@gmail.com>

Mon, Mar 14, 2022 at 5:17 PM

To: Karthikeyan K <cwlw_wildlife3@yahoo.in>, vijaya@niot.res.in, sarahdanieladv@gmail.com, yogeshwaranadv@gmail.com, amadass@niot.res.in, ramadass.niot@gov.in, tnfisheries@tn.nic.in, jdfisheriesnr4@gmail.com, jdfchennai28@gmail.com

**Government of India
Ministry of Environment, Forests and Climate Change
Integrated Regional Office (South Eastern Zone)**

F.No.(A).12.7/NGT(SZ)/03/2022/TN

Dated: 14th March, 2022.

Subject: Joint Committee Constituted by the Hon'ble NGT (SZ) in the matter of Appeal No.14 of 2022 (SZ) filed by challenging the Environmental and CRZ Clearance granted to fishing harbors at Alamparaikuppam, Chengalpettu and at Azhkankuppam, Villupuram.

Reference: Hon'ble NGT (SZ) Order dated 4.3.2022 in Appeal No.14 of 2022 (SZ).

Sir,

With reference to the above mentioned subject, the Hon'ble NGT (SZ) has constituted a Joint Committee to inspect the area in question and to submit a factual report. Accordingly the Joint committee is constituted of the following members.

1. Shri S.Sasikumar IFS, Deputy Inspector General Forests (Central) MoEF&CC, Integrated Regional Office, Chennai,
2. Ms. Mita Banerjee, IFS, Addl Principal Chief Conservator of Forests, Government of Tamil Nadu and
3. Dr Vijaya Ravichandran, Scientist G, National Institute of Ocean Technology (NIOT), Chennai

In this regard it is decided to inspect the area in question on 15.3.2021 and therefore it is requested to be present at the site on 10.30 am.

Yours faithfully

Shri S.Sasikumar IFS
Deputy Inspector General Forests (Central)

To,

1.Ms. Mita Banerjee, IFS, Addl Principal Chief Conservator of Forests, Government of TAMIL Nadu. Email: cwlw_wildlife3@yahoo.in/tnforest@nic.in

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2. Dr Vijaya Ravichandran, Scientist G, National Institute of Ocean Technology, Velacherry-Tambaram Main Road, Narayanapuram, Pallikaranai, Chennai - 600 100. Email: vijaya@niot.res.in

3. Shri Yuvadeeban, Appellant Email: sarahdanieladv@gmail.com

4. A. Yogeshwaran, Counsel for Appellant, No. 18, Brindavan Street, Mylapore, Chennai – 04
Email: yogeshwaranadv@gmail.com

Integrated Regional Office
MoEF&CC, GoI,
1st floor, Additional Office Block for GPOA,
No.26 Shastri Bhawan, Haddows Road,

सबका साथ
सबका विकास
सबका विश्वास
सबका प्रयास



Nungambakkam, Chennai – 600006.

Sabka Saath
Sabka Vikas
Sabka Vishwas
Sabka Prayas



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ANNEXURE 64

Yogeshwaran Amarneethi <yogeshwaranadv@gmail.com>

Note to the Committee - Appeal No. 14 of 2022 - M. Yuvadeeban v. Department of Fisheries before NGT (Southern Zone)

Sarah Daniel <sarahdanieladv@gmail.com>

Fri, Mar 18, 2022 at 4:33 PM

To: yogeshwaranadv@gmail.com, poongkhulali.b@gmail.com

----- Forwarded message -----

From: **Sarah Daniel** <sarahdanieladv@gmail.com>

Date: Fri, Mar 18, 2022, 16:33

Subject: Re: Note to the Committee - Appeal No. 14 of 2022 - M. Yuvadeeban v. Department of Fisheries before NGT (Southern Zone)

To: <roefccc1@gmail.com>, <cwlw_wildlife3@yahoo.in>, <vijaya@niot.res.in>, <amadass@niot.res.in>, <ramadass.niot@gov.in>, <tnforest@nic.in>

Madam / sir,

New Turtle nests were located today (18.03.2022) along the rubble road constructed on the beach leading to the estuary mouth. (Alamparai side). Hatchlings also emerged from nest on this stretch this morning and were released. Photos with GPS location and videos are available at the following link: https://drive.google.com/drive/folders/1oHz7k1SOuHvWVyMA7Jk1_uMT4GyQE66?usp=sharing

Regards

Sarah Daniel

Advocate

For Yogeshwaran A

Counsel for Appellant

[Quoted text hidden]



Yogeshwaran Amarneethi <yogeshwaranadv@gmail.com>

Appeal 14/2022 , NGT - Request to seek turtle nesting data

Yogeshwaran Amarneethi <yogeshwaranadv@gmail.com>

Sat, Mar 26, 2022 at 6:43 PM

To: mitabjee@yahoo.co.uk

Dear Madam,

I am Yogeshwaran , the advocate appearing in the subject mentioned appeal.

I have forwarded two emails - one with a short note with links and another with link to turtle hatchlings taken on 18.03.2022 at the site. These were sent to the MoEF RO.

I request you to kindly seek data on turtle nesting , hatchlings etc along this coast from the forest department .

South of estuary (Villupuram DFO)

Azagankuppam, Vasavan Kuppam, Kaipenni Kuppam, Eggiear Kuppam and Bhomaia Palayam - the data for this coast is available with the Villupuram District DFO

Kindly request data from Chengalpet DFO (collected by TREE Foundation) for the coast north of the estuary for these villages - Alambarai, Thandu Alambarai, Thalutalayur, Panaiyur Periya Kuppam and Thakutahlyur Chinna Kuppam and Paramenkeni.

these villages are north of Alambarai .

I'm informed that this has been an active season. Data of nesting over the last 5 years will demonstrate that the subject coast is a turtle nesting area.

Thank you.

--

Sincerely,

Yogeshwaran

Please excuse typographical errors. Composed on a mobile device.

Conservation Strategy and Action Plan for the Marine Turtles and their Habitats in Puducherry



May 2017



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

701

**Conservation Strategy and Action Plan for
the Marine Turtles and their Habitats in
Puducherry**

May 2016



Government of Puducherry



**भारतीय वन्यजीव संस्थान
Wildlife Institute of India**

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Pandav and Choudhury (2006) reported that tagged male and females showed fidelity to breeding ground in Odisha coast. Both males and females showed annual re-migration to the same courtship areas every year (Pandav et al. 2000). Female's movement recorded between the different nesting beaches in Odisha, both within a breeding season as well as between seasons (Tripathy and Pandav, 2007). The distance of inter rookery movement varied from 35 to 220 km (Pandav 2000; Tripathy and Pandav, 2008). Female turtles move southward along the coast after completing nesting (Pandav and Choudhury, 2006).

Habitat characteristics of turtle nesting beaches are poorly understood and available information is unelaborated. Large number of olive ridleys travel through the offshore waters of Tamil Nadu, Puducherry and Andhra Pradesh when traversing to and from the mass-nesting beaches of Odisha (Tripathy et al. 2003; Tripathy et al. 2006). It was reported that some of the turtles that nest in Odisha may be feeding off the coast of Sri Lanka and Tamil Nadu (Pandav, 2000; Bhupathy and Saravanan, 2006).

The coast between Puducherry and Chennai has approximately 75 km of sandy beach suitable for turtle nesting, with an average of 9.8 nests/ km/ season (Bhupathy & Saravanan 2001; Shanker 2003). Nesting starts in the middle of December and lasts till the end of March, attaining its peak in February (Bhupathy & Saravanan 2001). The population which nests on the Chennai coast is part of the same lineage which nests in Orissa; this population is considered to be globally significant as they are distinct from, and ancestral to, olive ridleys found in the Atlantic and Pacific Oceans (Shanker *et al.* 2004).

1.6. Necessity of the Conservation Action Plan

A significant proportion of world's olive ridley population migrate every winter to the Indian coastal waters to nest on the beaches in Odisha, Gujarat, Puducherry, Andaman and other parts of Indian coast. All the five species of sea turtles that occur in Indian coastal waters are protected under Schedule I of the Indian Wildlife Protection Act (1972), as well as listed in Appendix I of Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) which prohibits trade in turtle products by signatory countries. All species of sea turtles occurring in the Indo-Pacific region are a priority for conservation under the "Convention on the Conservation of Migratory Species of Wild Animals (CMS)" and are listed on both Appendices I and II. At present there are no commercial or international trade

704**Complete Executive Record Sheet Report**[Print](#)

Name :	S. SASIKUMAR
Service:	Indian Forest Service
Cadre/Allotment Year :	WB:2002
Date of Birth :	31/05/1973
Gender :	Male
Place of Domicile :	TAMIL NADU
Date of Appointment :	19/08/2002
Recruitment Source :	RR
IFS Cadre :	WEST BENGAL

Officer Address :	789 PANNEER NAGAR MOGAPPAIR CHENNAI 600037	Marital Status :	Married
Telephone Office :	04222305550	Telephone Residential:	04222301415
Fax Number:	0422230660	Mobile :	7598147315
Email Address:	forshashi28@yahoo.com	If Tenure Post,Date of Expiry of the Tenure :	No ,

Educational Qualifications.**Qualification I**

M.Sc Agriculture

Qualification II

M Sc Environment Managemge

Qualification III

PG Diploma In Forest Magm

Posting Details.

S. No	Date of Posting From	Date of Posting To	PostHold	Department	Post Under	Pay Scale & Grade Pay	Date of Scale
1	08/06/2021	03/03/2022	DEPUTY INSPECTOR GENERAL OF FORESTS CENTRAL	MOEF AND CC IRO CHENNAI	CDR(CSS- MOEF)	144200- 218200 & Level 14	01/01/2020
2	14/07/2020	07/06/2021	CHIEF CONSERVATOR OF FORESTS GAZETTED CELL	DIRECTORATE OF FORESTS	CADRE	144200- 218200 & Level 14	01/01/2020
3	11/05/2018	14/07/2020	CONSERVATOR OF FORESTS WILD LIFE HQ	WILD LIFE WING DIRECTORATE OF FORESTS	CADRE	131100- 216600 & Level 13A	16/06/2016
4	28/09/2017	11/05/2018	OCW AND ATTACHED WITH WBSFDA	DIRECTORATE OF FORESTS	CADRE	131100- 216600 & Level 13A	16/06/2016
5	27/09/2010	27/09/2017	Regional Passport Officer	Ministry of External affairs	CDR(NON- CSS)	37400-67000 & PB-4	01/01/2015

Training Details

S.No.	Type	Financial Year	Duration	Training From	Training To	Institute code	Subject Code	Country Name
1	Domestic	2020-2021	2D	05/11/2020	06/11/2020	Wildlife Institute of India, Dehradun	Management Effectiveness Evaluation of Protected areas	India
2	Domestic	2019-2020	1W	22/09/2019	27/09/2019	Human Wild Life Conflict mitigation Project GIZ and WII, Dehradun	Training Expedition on Holistic Approach to Human Wildlife Conflict Mitigation in India	India
3	Domestic	2017-2018	1W	12/02/2018	16/02/2018	Kanha Tiger reserve, Madhya pradesh	Wildlife Management-Issues, Concerns and Practices	India
4	Domestic	2013-2014	1W	09/09/2013	13/09/2013	IMTR, Goa	Motivation Mantras	India
5	Domestic	2009-2010	1W	08/02/2010	12/02/2010	Centre for Forest and Natural Resource Management Studies, Dulapally, Hyderabad	"Optimum Forest Cover-strategies for achieving the National Goal"	India
6	Domestic	2009-2010	1W	08/06/2009	12/06/2009	LNJL National Institute of Criminology and Forensic Science, Delhi	Investigation, Prevention and Control of Wild Life Crime	India
7	Domestic	2008-2009	1M	03/11/2008	30/11/2008	International society for Mangrove Ecosystems , Okinawa, Japan	Management and Restoration of	India
8	Domestic	2008-2009	1W	11/08/2008	15/08/2008	Tata Energy Research Institute Delhi	Clean Development Mechanism and Renewable Energy with Special reference to Biofuels	India
9	Domestic	2007-2008	1D	16/07/2007	16/12/2007	I G N F A	How to be effective in Cadre Management of Forest officers	India
10	Domestic	2006-2007	1W	12/06/2006	16/06/2006	Indian Plywood Industries Research and Training Institute, Bangalore	Bamboo Resource Development for addressing Livelihood Concerns of Communities	India
11	Domestic	2005-2006	1W	18/07/2005	22/07/2005	Sardar Vallabhbhai Patel national Police Academy, Hyderabad	Detection and Investigation of wild Life Crime apprehension of Offenders and Mob Management	India

Specialization Details (Domestic)

Area of specialization I	Area of specialization II	Area of specialization III	Publication	Award
ENVIRONMENT MANAGEMENT	ENVIRONMENT MANAGEMENT	ENVIRONMENT MANAGEMENT	Thesis submitted and awarded M Sc Environmental management	Received Best passport Office award for the record 5 years consecutively from the Honble Minister of External affairs

[Back](#)

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Name :	MITA BANERJEE
Service:	Indian Forest Service
Cadre/Allotment Year :	TN:1990
Date of Birth :	20/03/1967
Gender :	Female
Place of Domicile :	WEST BENGAL
Date of Apoinment :	20/08/1990
Recruitment Source :	RR
IFS Cadre :	TAMIL NADU

Officer Address :	State Forest Research Institute Kolapakkam Chennai	Marital Status :	Unmarried
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B.Sc.Hons Botany

Qualification II

Diploma equiM.Sc.Forestry

Qualification III**Posting Details.****Posting Details are not Available****Training Details****Training Details are not Available****Specialization Details (Domestic)****Specialization Details are not Available**[Back](#)

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Qualification	Discipline	University	Passed Year
M.TECH	Geo technical Engineering	IIT Roorkee	2009
B.TECH	CIVIL	Kerala University	2007

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Areas of Specialisation

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Qualification	Discipline	University	Passed Year
PHD	CIVIL ENGG	IIT Madras	2016
MS	Ocean Engineering	IIT Madras	1993
B.E	CIVIL ENGG	Madras University	1990

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PEOPLE PROFILE

Basic Details Academic Background **Areas of Specialisation** Awards & Honors Publications



Areas of Specialisation

Marine Foundations, Water Retaining Structures, Environmental Impact Assessment, Environmental Management, Risk Assessment, Contracts & Project Management

<https://www.niot.res.in/niot1/profile.php#interest>

16th April 2022

Subject: Importance of biologically active mudflats and salt marshes of Kaveli estuary and creek.

Whomsoever this may concern,

The Kaveli Tank and Yeduyanthittu estuary have always been a crucial supplier of ecosystem services to the abundant biodiversity, and human societies that depend and benefit from it. Considering the recent actions to build fishing harbors in the area, it is important to take cognizance of the natural ecosystems that will be altered in this process, and the impacts that this will have.

Of particular importance is the vulnerable mudflat ecosystem. Mudflats refer to land near a water body that is regularly flooded by tides and is usually without vegetation. They are formed by the deposition of mud by tides or rivers. The ecosystem represents a transition from sediment areas that are continually covered by the sea, through areas completely inundated by most tides. They are therefore referred to as intertidal or tidal mudflats.

Biologically active Intertidal mudflats, such as those found adjacent to the Kaveli Tank and Yeduyanthittu estuary, are a dynamic habitat. Their continued presence depends on maintaining the balance between the rate of sediment deposition and the erosion of sediment by tidal and wave action. When the accumulating mud rises above the water surface allowing vegetation to colonise, and establishing the foundation for saltmarsh plants, seagrass, mangroves and other coastal ecosystems. This enables capture of more sediment and allows the habitat to keep building. In this way mudflats facilitate the dissipation of wave energy, reduce erosion and protect low-lying land from flooding. They also play a critical role in climate change mitigation by facilitating the storage of carbon in the mud, which can extend several meters deep.

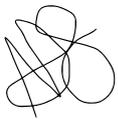
Although generally poorly acknowledged outside the scientific community, mudflats represent a rich and productive ecosystem. The mud is extremely fertile thanks to its high content of organic material. The biodiversity of mudflats centres on the range of invertebrates living in the sediment which are extremely productive biologically. These include molluscs, crustaceans and worms such as oysters, mussels and snails. Mudflats provide an important nursery and feeding ground for many fish species. They also provide feeding areas for gobies, sea bass and other species which feed on the invertebrates. They also provide a valuable food source for important populations of wintering waders and wildfowl such as redshank, bar-tailed godwits, and curlews.

There is global and national recognition of the importance of Kaveli Tank and Yeduyanthittu estuary, particularly as a habitat to migratory birds using the Central Asian Flyway. They were designated as an Important Bird Area (IBA) by Birdlife International and Bombay Natural History Society (BNHS) in 2012. Additionally, the area is identified as an Important Coastal and Marine Biodiversity Area (ICMBA), with a recommendation to make it a community conservation area, towards fulfilling India's commitments to National Biodiversity Target no.

6 and Aichi Biodiversity Target no. 11. Both these designations are listed on the ENVIS Center on Wildlife and Protected Areas, by Wildlife Institute of India (WII), sponsored by the Ministry of Environment Forests & Climate Change (MoEF&CC), and are included in India's reporting to the Convention on Biological Diversity.

It is my belief that infrastructure development in and adjacent to Kaliveili Tank and Yeduyanthittu estuary will likely adversely impact not just these biologically active mudflats, but subsequently have domino effects on the seagrass, saltmarshes and sand dunes (all of which form one contiguous habitat).

Thank you,



Nisha D'Souza

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Nisha Maria D'Souza

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Experience

Founder & Consultant [EcoNiche Consulting](#) (*February 2019 – present*)

Projects I have led/lead:

- **Tata Chemicals Society for Rural Development (TCSR)** (*July 2019 – present*)
Serve as Programme Coordinator of the Centre for Sustainable Conservation Action and Protection of Ecosystems of the Seas ([CSCAPES](#)), facilitating the design, and overseeing the implementation, of diverse ecosystem restoration and conservation projects across coastal India, including their documentation and tracking of key requirements, activities, targets, and deliverables, as well as administration of associated scheduling, budgetary and reporting systems.

- **The Good Ocean + EcoNiche Partnership** (*October 2021 – present*)
As early-stage investors, EcoNiche is working with local organisation The Good Ocean. We have set up a small farm to explore the business viability of integrated, native [seaweed + mussel farming](#) on the west coast of India.

- **Terre de Hommes (tdh)** (*August 2020 – September 2021*)
Supported Tdh as technical point-person for preparation and design of two rapid resilience assessments and associated funding proposals for; 1) increased socio-ecological resilience and climate adaptation in the [Indian Sundarbans](#), and 2) towards [delivering climate rights](#) to youth in South Asia (Afghanistan, India, Nepal, Pakistan). Both proposals were developed for submission to the BMU (Federal Ministry for Economic Cooperation and Development, Govt. of Germany). Tdh was sanctioned the first project in July 2021; the outcome of the 2nd proposal is awaited.

- **Suganthi Devadason Marine Research Institute (SMDRI)** (*July 2019 – June 2020*)
Analysed 15 years of monitoring data from the Gulf of Mannar (India) coral reef ecosystem to support and advise decision-making for coral ecosystem management.

- **Circlewallas** (*January – June 2019*)
Engaged with the waste management industry to evaluate business models for re-cycling/purposing recovered waste materials in India, as part of the Circlewallas team, for The Energy Resources Institute (TERI) and GIZ (the German Development Agency).

IUCN – Small Grants Officer, Mangroves for the Future (MFF) India

(*April 2011 – August 2017*)

Led the delivery of 25 partnership-based projects across 5 Indian coastal states for increased coastal community and biodiversity resilience. Demonstrated workable conservation solutions to Govt. of India, towards delivery of national SDG 14 targets.

- Liaised with governments and conservation practitioners on behalf of IUCN (International Union for Conservation of Nature) and MFF National Coordination Body, Chaired by Sec. Ministry of Environment, Forest and Climate Change (MoEFCC)
- Collated and analysed project data and information to assess progress towards meeting national and Asia-regional MFF targets. Developed progress reports for donors, the IUCN network, MFF Secretariat and MoEFCC. Reported directly to Dr. JR Bhatt, Advisor (Climate Change), MoEFCC, and Member Secretary (NCB India).
- Provided scientific evidence to meet State Govt. needs. Worked with Dr. Vasudevan, Chief Conservator Forests (CCF, Mangrove Cell) Maharashtra Forest Dept. to develop whale shark conservation plans, leveraging training as an IUCN Red List Assessor.
- Fund raised and led a team to value seagrass ecosystem services in Palk Bay, India. Provided recommendations for the Tamil Nadu Forest Dept. to revive local fisheries

- and strengthen community stewardship. As part of the MoEFCC, GIZ, IUCN team, organised the first workshop in India to develop a national framework for seagrass conservation, liaising with experts from the IUCN Species Survival Commission (SSC).
- Provided strategic direction in the design of coastal and marine conservation objectives and targets for the IUCN Intercessional Programme (2017-2022).
 - Contributed to strengthened functional and productive relationships with related technical programmes and organisations in India. Facilitated collaborative conservation action through the development of a public-private, marine wildlife stranding network in Goa, responding to over 200 stranding episodes in 1.5 years.
 - Monitored interventions on-site across India, ensuring they were technically sound. Evaluated the effectiveness of participatory approaches to mangrove management in the Sundarbans Biosphere Reserve and MPA, for West Bengal Forest Dept.
 - Represented IUCN at international and national fora to share project learnings. Showcased Integrated Mangrove Fisheries Farming System models for poverty alleviation at the World Conservation Congress (Jeju, 2012). Advised on local governance of dugong habitats at the CMS COP (Abu Dhabi, 2016) on behalf of IUCN and the Suganthi Devadason Marine Research Institute (SDMRI).
 - Managed project budgets and national MFF budgets; reported to IUCN Asia Regional Office (Bangkok) on a quarterly basis.
 - Based on insights gained through project cycle management, provided mentorship and training to over 35 conservationists and project grantees across India.

IUCN World Conservation Congress: Communications Team (*April – October 2016*)

Transformed daily outputs and notable outcomes of events prior to, and at, the IUCN World Conservation Congress (Hawai'i), into blogs, web stories and social media content. Monitored the overall editorial mix of website content and public engagement, contributing to raising publicity and awareness of Congress conservation outcomes. Wrote interview talking point aids for IUCN Ambassadors Sylvia Earle and Jane Goodall.

Education

University of Cambridge

MPhil. Conservation Leadership (*2018*)

- Thesis Project: Enabling institutions to increase the impact of their scientific research in UK parliamentary and government decision-making processes for conservation.

University of Sydney

MSc. Wildlife Health and Population Management (*2011*)

BSc. Marine Sciences (*2009*)

Certifications Awards & Volunteer Work

- ILM (Cambridge) Level 3 Leadership & Management Certificate (*2018*)
- Miriam Rothschild Scholar (Cambridge Dept. of Geography) (*2017-18*)
- Member of the India [Initiative for Climate Action](#) (ICA)
- Mentor at [Vahani Scholarship](#) (Education Charity Trust)

Published Scientific Work

- Advisor to Taylor N.G., Grillas P., Smith R.K. & Sutherland W.J. (2021) [Marsh and Swamp Conservation: Global Evidence for the Effects of Interventions to Conserve Marsh and Swamp Vegetation](#). University of Cambridge, Cambridge, UK.
- Das, S., DSouza, N., (2019) [Identifying the local factors of resilience during Cyclones Hudhud and Phailin on the East Coast of India](#), *Ambio*, The Royal Academy of Science
- Patterson, J.K.E., Raj, D.R., Mathews, G., Kumar, P.D., Arasamuthu, A., DSouza, N., Bilgi, D.S. (2019) [Seagrass Restoration in Gulf of Mannar, Tamil Nadu, Southwest India: a Viable Management Tool](#), *Environment Monitoring Assessment*, Springer Nature Switzerland
- DSouza N., Ishwar NM., Sumra, I., Vyas P. (2017) [Participatory Wetland Management: A Solution to Conservation Challenges in the Sundarbans](#), in *Wetlands of South Asia*, eds. Prusty, BAK., Chandra, R., Azeez, PA., Springer, Delhi

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Dakshin Foundation
www.dakshin.org

16-04-2022

Bengaluru

To Whom it may concern

The Kaliveli waterbody located in the Viluppuram District of Tamil Nadu comprises of the Yedavanthittu estuary, the Uppukalli creek, the Kaliveli floodplains and is one of the most important wetlands along the Coromandel coast. The Kaliveli floodplain acts as a seasonal reservoir helping drain the copious water that flows in from a watershed area of approximately 740 sq.km through more than 250 interconnected tanks and channels (Ramanujam and Anbarasan 2007). In addition to reducing flooding, floodplains also are known to play a critical role in recharging groundwater aquifers and provide a range of other ecological and economic services. The estuary and creek linked to the floodplain have rich biodiversity due to salt marshes and biologically active mudflats present here. The Kaliveli waterbody has been declared an 'Important Bird Area' by the Bombay Natural History Society (Rahmani et al, 2016) and has also been recommended as a potential Ramsar Site (Islam & Rahmani 2008). The Wildlife Institute of India has identified the Kaliveli system to be an Important Coastal and Marine Biodiversity Area (ICMBA) (Saravanan et al 2013). The estuary and the creek harbours mangrove ecosystems, seagrass meadows, oyster reefs, and a range of other halophyte (salt-loving) plant species. The [ebird](#) website reports over 160 species of bird species from just the estuary. More than 268 species of vertebrates were recorded from the watershed region by Ramanujam and Anbarasu (2007).

Ramanujam and Anbarasan (2009) also report mangrove patches from the estuarine and creek areas dominated by mangrove species such as *Avicennia marina* and *Rhizophora mucronate*. Ecologically sensitive areas harbouring mangroves have been categorised under CRZ 1. Mangroves are also critical in shielding coastal settlements and habitats from storms and cyclones while simultaneously acting as nursery grounds for many economically important fish species. The adjoining beaches support nesting populations of the olive ridley turtles. Sea turtle nesting beaches are also categorised as CRZ 1. Saravanan et al. (2013) also report sand dunes from the area, again classifying them as CRZ areas.

In addition to the above, the estuary and the creek also harbours extensive mudflats and salt marshes and patches of seagrass. Both mudflats and salt marshes provide unique services to humans and play a critical role in the maintenance of coastal ecology. Tidal marshes and mudflats result from the physical and biological interactions between the hydrology (flooding, with salts and sediments) of the region and the salt-tolerant flora (primarily

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species of the genus *Sesuvium*, *Suaeda* and *Salicornia*) and fauna (mudskippers, fiddler crabs and many other intertidal species). The services that these ecosystems provide are multiple and I am listing a few of them below.

1. Salt marshes are capable of self-maintenance, adapting to increasing flooding, both from the landward side and from the seaward side (Burdick and Roman 2012). They are thus critical in buffering the effects of sea level rise and storm surges and help in the drainage of floodwaters from the hinterland. Both these processes ensure coastal infrastructure and human settlements are protected.
2. Mudflats and salt marshes are unique and provide feeding grounds for many species of migratory and resident bird species, they act as nursing and feeding grounds for many economically important species of fish, oysters, mussels and crustaceans and ensure that productivity is maintained in these otherwise harsh environments.
3. Scientists have argued that disruptions in the natural dynamics (tidal flow and freshwater hydrology and sediment dynamics) of estuaries, salt marshes and mudflats or their destruction can make coastal systems and the communities (both human and non-human) vulnerable to coastal cyclones and storm surges, make them more prone to flooding and significantly affect fisheries production (Alongi 1998, Kennish 2001, Purcell 2020).
4. When compared to other habitats globally, coastal wetlands are known to sequester the largest amount of carbon per unit area (in the form of 'blue carbon') than any other habitat worldwide (Pendleton et al. 2012, McLeod et al. 2012 and Coverdale et al. 2014). It is estimated that coastal wetlands can sequester up to 4.8–87.2 Tg C/yr globally (Chmura 2013), making their conservation and management an important goal worldwide.

In summary, coastal wetlands of the Kaliveli wetland system are of great ecological significance (as important bird areas, fish nurseries, habitat for specialist species), provides a range of ecosystem services that are critical to the coastal communities (by draining excess rainwater, recharging aquifers, buffering the coastlines and infrastructure from storms and other catastrophes, reducing erosion, promoting local fisheries production), act as one of the best carbon sinks and also enjoy legal protection as sites falling under category CRZ 1.

While maritime-based development activities are critical for the nation's growth and development, it is equally, if not more important, to plan with coastal vulnerability, long-term sustainability and wellbeing of ecosystems and local communities in mind. Most large development projects along the coasts often provide significant short-term benefits for the project proponents, however, the consequences of ecosystem degradation and loss of the above-mentioned services are often borne by the local inhabitants (both human and non-human). Evidences of the consequences of myopic planning that does not value the services provided by such ecosystems are evident from

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the multiple catastrophes that have hit the coastline of Chennai. Any coastal development initiative in such ecologically fragile areas need to ensure such development projects do not have long-term consequences for the environment or for the wellbeing of our coastal inhabitants. The courts and other regulatory authorities need to ensure that such sensitivities and concerns are integrated into development planning and help build an equitable and sustainable future.

Thank you.

Yours faithfully,

Naveen Namboothri, Ph.D.

Programme Head - Sustainability Fisheries Programme

Dakshin Foundation

Bangalore, India.

References cited:

1. Alongi, D.M., 1998. Coastal Ecosystem Processes. Boca Raton: CRC Press. 419p.
2. Burdick, D.M., and C.T. Roman. 2012. Salt marsh responses to tidal restriction and restoration: a summary of experiences. In Tidal marsh restoration, ed. C.T. Roman and D.M. Burdick, 373–382. Washington, DC: Island Press.
3. Chmura GL (2013) What do we need to assess the sustainability of the tidal salt marsh carbon sink? Ocean Coast Manag. 83: 25–31.
4. Coverdale TC, Brisson CP, Young EW, Yin SF, Donnelly JP, et al. (2014) Indirect Human Impacts Reverse Centuries of Carbon Sequestration and Salt Marsh Accretion. PLoS ONE 9(3): e93296. doi:10.1371/journal.pone.0093296
5. Islam, M.Z. and Rahmani, A.R. (2008) Potential and Existing Ramsar Sites in India. Indian Bird Conservation Network, Bombay Natural History Society, BirdLife International and Royal Society for the Protection of Birds. Oxford University Press. Pp. 592.

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6. Kennish, M.J. 2001. Coastal saltmarsh systems: a review of anthropogenic impacts. *Journal of Coastal Research* 17: 731–748.
7. Mcleod E, Chmura GL, Bouillon S, Salm R, Bjo`rk M, et al. (2011) A blueprint for blue carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO₂. *Front Ecol Environ* 9: 552–560.
8. Pendleton L, Donato DC, Murray BC, Crooks S, Jenkins WA, et al. (2012) Estimating global “blue carbon” emissions from conversion and degradation of vegetated coastal ecosystems. *PLoS One* 7: e43542.
9. Purcell, A. D., P. N. Khanal, T. J. Straka, and D. B. Willis. 2020. Valuing ecosystem services of coastal marshes and wetlands. Clemson, SC: Land-Grant Press by Clemson Extension. <https://doi.org/10.34068/report4>.
10. Rahmani, A.R., Islam, M.Z. and Kasambe, R.M. (2016) Important Bird and Biodiversity Areas in India: Priority Sites for Conservation (Revised and updated). Bombay Natural History Society, Indian Bird Conservation Network, Royal Society for the Protection of Birds and BirdLife International (U.K.). Pp. 1992 + xii
11. Ramanujam M.E. and R. Anbarasan (2007). A preliminary report on the vertebrate diversity of the kaliveli watershed region. *Zoos Print Journal*, 22(3):2608–2616,
12. Ramanujam, M.E. and T. Murugavel (2009). A preliminary report on the development of young indian eagle owl *bubo bengalensis* (Franklin, 1831) in and around puducherry, southern india. *Journal of Threatened Taxa*, 1(10):519–524,
13. Saravanan, K., Chowdhury, B.C., Sivakumar, K., 2013. Important coastal and marine biodiversity areas on East coast of India. In Sivakumar, K. (Ed.) *Coastal and Marine 25 Protected Areas in India: Challenges and Way Forward*, ENVIS Bulletin: Wildlife & Protected Areas. Wildlife Institute of India, Dehradun, India. Vol.15, 292-298.

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President:

Randhir Sahgal

17 April 2022

TO WHOM IT MAY CONCERN

Submission by Bombay Natural History Society (BNHS) on proposed Kaliveli harbours

The Bombay Natural History Society (BNHS) is India's oldest nature conservation organization and we work in several states on nature conservation and research. Please find our comments below for consideration.

The Kaliveli watershed is a complex group of over two hundred wetlands, many exceeding 200ha in area. It lies roughly between the towns of Tindivannam to the North West, Marakannam to the North East and Pondicherry to its South. Kaliveli falls under the Pennar basin and Penniyar sub-basin. The wetland supports hundreds of species of flora and fauna. The Kaliveli along with Yedayanthittu Estuary is identified as an Important Bird Area under A1 (Threatened species), A4i (1% biogeographic population) and A4iii (> 20,000 waterbirds).

It is also identified as one of the wetlands of national importance by the Ministry of Environment, Forests and Climate Change and critical and crucial wetland complexes for migratory waterbird species of the Central Asian Flyway by the Ministry of Environment Forests and Climate Change in India's national action plan for the conservation of the migratory birds in the Central Asian Flyway (2018-2023). Several anthropogenic threats to Kaliveli are identified through previous studies (Bhalla, 2011; Silambarasan and Sundaramanickam, 2017). It is also to be noted that the Ministry of Environment Forests and Climate Change has recently unveiled the Marine Turtle Action Plan (2021).

The Hon'ble National Green Tribunal in Paryavarana Parirakshana Sangham vs Uolhas recently observed that wetlands need protection, as reflected in Supreme Court orders also. It has said:

"It is clear from the decision that the Wetlands (Conservation and Management) Rules, 2010 is applicable not only to the notified/declared wetlands under the said Rules, but also those wetlands which were mapped and identified in the National Wetland Atlas by the Union of India. This was further reiterated by the Hon'ble Apex Court in the order dated 04.10.2017 in M.K. Balakrishnan Vs. Union of India &Ors. in W.P. (Civil) No.230 of 2001.

We make it clear and reiterate that in terms of our order dated 8th February, 2017, 2,01,503 wetlands that have been mapped by the Union of India should continue to remain protected on the same principles as were formulated in Rule 4 of the Wetlands (Conservation and Management) Rules, 2010.

We further direct the State Governments that have not complied with earlier orders or directions given by the Central Government should do so within a period of four weeks from today failing which we will be constrained to require the presence of the Chief Secretaries of the State Governments in addition to imposition of heavy costs."

Bombay Natural History Society
Hornbill House, Dr. Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai – 400 001, India.

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President:

Randhir Sahgal

.2.

There are two fishing harbours and associated structures proposed in Azhagankuppam (Villupuram district) and Alamparaikuppam (Chengalpettu district), which appear to be a major threat to the biodiversity and also to the wetland system. The EIA report by the State Environment Impact Assessment Authority, Tamil Nadu does not clearly provide the impacts of these developments on the biodiversity and the wetland complex as a whole. Hence, a petition was filed by Mr. M. Yuvadeeban against Department of Fisheries (Tamil Nadu), Tamil Nadu State Environment Impact Assessment Authority and the Tamil Nadu Forest Department before the National Green Tribunal (SZ), Chennai.

The NGT Southern Bench has appointed a Joint Committee to assess the following:

- i) Whether the area falls under CRZ -1A and whether the area has been notified as an Olive Ridley turtle nesting ground
- ii) Whether establishment of the project will have any impact on the Kaliveli bird sanctuary
- iii) Whether that area is rich in biological diversity including active mudflats, sea grass beds, sand dunes, salt marshes, etc
- iv) Even if the project is a permissible activity and if it has to come up, what are the necessary further conditions to be imposed to mitigate the impact on the eco-sensitive zones mentioned above.

BNHS notes the following points:

1. The Committee made the field visit and submitted its report. The information on the biodiversity of the area is not adequate. There are a number of scientific studies carried over the period in the region by the many reputed organizations/institutions and the outcomes are provided by the petitioner to the NGT.
2. The short visit of the committee could not evaluate and reproduce the biodiversity wealth, especially the breeding site for rare marine turtles such as Olive Ridley turtles and the home the site provides to a wide variety of migratory waterbirds.
3. Moreover, the CRZ details given in the report are found erroneous. The past 11 years turtle nest count shows that an average of around 3200 turtle eggs are laid in Alambarai alone (Table 1). The detailed critique on the Joint Committee report has been annexed.

President:
Randhir Sahgal

.3.

Table 1: Sea turtle nesting information of Alambarai from 2010-11 to 2020-21

S.No	Year	No. of Eggs
1	2010-11	477
2	2011-12	1046
3	2012-13	4115
4	2013-14	3060
5	2014-15	2587
6	2015-16	2394
7	2016-17	3942
8	2017-18	7697
9	2018-19	4648
10	2019-20	2862
11	2020-21	2490

A holistic approach to find the impact of the development on biodiversity and on the entire wetland ecosystem including the estuary as well as Kaliveli is essential, as this system provides enormous ecological services and livelihood for the thousands of locals. Hence BNHS suggests the following before any interventions are made in this sensitive ecosystem:

1. Thorough long-term study at least for the period of three to five years on impacts of dredging and construction activities on the biodiversity and ecosystem. The studies should be conducted during the appropriate time of the year for different components. For migratory species, particularly birds, it should be between October to March and Turtles from November to April. The study should also include other species, including turtles and whales, through the years.
2. The Kaliveli wetland has a huge and significant zone of influence, which serves lakhs of villagers. The impact of the proposed project on the overall drainage dynamics should be studied in detail before execution of any construction process. Without the said detailed study may lead to irreparable impact on the whole system. It may also lead to destruction of the wetland and its ecological, social and economic importance.
3. Study on the impact of training walls on sediment movements and sand dune formation that is crucial for turtle breeding.

President:

Randhir Sahgal

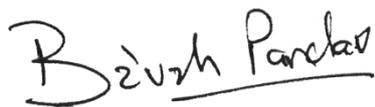
.4.

4. Multi-dimensional study on Impact of dredging the estuary on biodiversity and on Kaliveli's conservation needs.
5. Proper study on the CRZ status of the proposed sites.
6. As Kaliveli is a coastal wetland which is dynamic in nature, it is essential to study the entire system and not just one site. It is essential to understand the cumulative impact of harbour construction on the entire system. Destruction and disturbance to this wetland and its zone of influence may cause higher financial burden to the state government and the local socio-economic status of other communities depending on the system which cannot be reversed.

Literature Cited

Bhalla, R. S. (2011): Conservation of the Kaliveli Wetland Complex – towards a comprehensive management plan. Foundation for Ecological Research, Advocacy and Learning, Puducherry. Pp 29.

Silambarasan & Sundaramanickam (2017): Assessment of anthropogenic threats to the biological resources of Kaliveli lake, India: A coastal wetland. 393-409. *In*: Finkl, C. W & C. Makowski (eds.). Coastal Wetlands: Alteration and Remediation. Springer International Publishing.



Bivash Pandav, Ph.D.
Director

Critique of the Joint Committee Report in Appeal 14 of 2022

On 15th April 2022, a Joint Committee appointed by the NGT Southern Bench surveyed Kaliveli estuary and the proposed sites of two fishing harbours inside Kaliveli creek. They were to prepare a report based on the following queries raised by the Tribunal -

- i) Whether the area falls under CRZ -1A and whether the area has been notified as an Olive Ridley turtle nesting ground
- ii) Whether establishment of the project will have any impact on the Kaliveli bird sanctuary
- iii) Whether that area is rich in biological diversity including active mudflats, seagrass beds, sand dunes, salt marshes, etc.
- iv) Even if the project is a permissible activity and if it has to come up, what are the necessary further conditions to be imposed to mitigate the impact on the eco-sensitive zones mentioned above

The report produced by the Joint Committee signed by Mr. S. Sasikumar (MoEFCC), Ms. Mita Banerjee (APCCF) and Dr. Vijaya Ravichandran (from NIOT, who was absent during the survey and one Mr. Kiran was present from NIOT) suppresses many facts witnessed during the survey and about the region itself, lacks research, and any knowledge of this landscape. It is clearly biased towards the Fisheries Department and has categorically under-represented the rich biodiversity of this estuary.

	Statement in the Joint committee report	Comments
	<p>3.1- Paragraph 2: According to a book titled, 'Marine Turtles of the Indian Subcontinent' a Wildlife Institute of India publication, Chapter on Marine turtles of Tamil Nadu, Table 3, the number of nests observed per km stretch is 3.5 between Puducherry and Mamallapuram. The data is based on sampling carried out in 2001 during January-February along coastal Tamil Nadu.</p>	<p>This data is obsolete, false and two decades old. In a later report by WII in May 2016 the nesting rate is mentioned as 9.8 nests/km/season. (Sivakumar, K. et al. May 2016, Conservation Strategy and Action Plan for the Marine Turtles and their Habitats in Puducherry)</p> <p>In 2022 Turtle nests in Alamparai beach alone - the stretch which will be eroded by the harbour training walls – was 49 in number as on March 2nd 2022, from data provided by 'Tree Foundation' that patrols and monitors nests along this stretch. This has been filed in pg 450 of File B by the appellant. Further nesting has occurred on these beaches and the number is close to 70, according to information received.</p>

		<p>Geo-marked photos of some of these nests and hatchlings have been attached below. Photos and videos of Hatchings and nests on 18.03.2022, alongside the road constructed, were also sent to the committee vide email dated 18.03.2022. The report makes no reference to this or to the fact that live turtle tracks were seen on the Azhagankuppam side (southern side) of the estuary mouth.</p>
	<p>3.1- Paragraph 3: It is observed that the project is being executed in the specified area as mentioned in the EC and as per the project level CRZ Map prepared based on approved CZMP Maps of Tamil Nadu (CRZ Notification, 2011) by the NCSCM for the purpose of getting EC to this project, it is also noticed that, the project area is not falling in CRZ-1A category.</p>	<p>The Hon'ble NGT had asked the committee to verify if the site qualifies as a CRZ - 1A area which the committee has failed to do.</p> <p>The maps prepared by NCSCM are erroneous and do not reflect the ground reality. The entire estuary and adjoining wetlands are biologically rich mudflats and seagrass beds. The beaches right to the estuary are turtle nesting grounds. They hence satisfy the criteria to be marked as CRZ - A, but have not been marked as CRZ - 1A (supporting pictures below) The committee members ought to have reported what they saw – instead of merely stating what the CZMP states.</p>
	<p>3.1- Paragraph 5: During the site visit the committee has not seen any Olive Ridley turtle nesting area in the proposed project sites. However noticed some old nesting sites at sand dunes area, which are located outside the project implementing area and is already marked as CRZ-1A category in the CRZ Map, which is about 500m away from the project site. It is also noticed that as such no disturbance has been made to the sand dunes due to the project implementation, The project implementing area is not falling in CRZ-1A and not an Olive Ridley turtle nesting area as observed by the Joint Committee during the visit.</p>	<p>The committee has hidden the truth here. On the day of the survey fresh tracks of an Olive Ridley sea turtle and an active nest, along with an old nest and a turtle carcass were observed by the committee, the local people, the appellant, his counsel and all the officers present there. (picture below)</p> <p>Moreover, the forest department and the local turtle trackers mentioned to the committee that this entire beach until the estuary is an active turtle nesting ground.</p> <p>Turtle nesting activity happens at</p>

		<p>midnight and early morning. The committee survey happened at noon. Coming to a conclusion of 'no nesting turtles' or not an important turtle nesting site on the basis of a short afternoon visit defies logic.</p> <p>Data of turtle nesting on these shores is available with the forest department and the committee did not even requisition this data despite being requested to do so vide email dated 26.03.2022.</p> <p>Such biodiversity studies require a more sustained long-term/all season studies/approach. The fact that the subject coast is a turtle nesting ground can be established from the nesting data available for the last 5 years.</p>
	<p>3.2- Paragraph 1:</p> <p>Kaliveli Bird Sanctuary is located about 12 km of areal distance from the project site at Azhagankuppam village in Villupuram District and about 14 km of aerial distance from project site at Alamparaikuppam village in Kancheepuram District. In addition to the native species, this Bird Sanctuary also attracts migratory birds from various places. Since the project site is not falling within the default Eco Sensitive Zone of Kaliveli Bird Sanctuary, possibility of any impact to the Bird Sanctuary can be nullified. The areal distance calculated based on Google Earth is at Annexure-VI</p>	<p>The committee is not aware that the Kaliveli estuary is also a declared Important Bird Area (IBA) and an Important Coastal and Marine Biodiversity Area (ICMBA). The estuary and creek are also declared wetlands by MoEFCC and ISRO under the National Wetland Inventory of 2011. Basic research about the site would have given this information. Moreover, on the day of the survey, the appellant pointed out to the executive committee over 30 species of migratory birds and shorebirds that had congregated in their hundreds at the estuary mouth and at the project sites. No mention of this is there in the report. The committee members also saw birds through the scope brought by the appellant (Supporting pictures below)</p> <p>Further, the committee has failed to see that the Kaluveli lake, creek and Yedayanthittu estuary are contiguous. The unique hydrological regime of the wetland complex will be altered by the</p>

		<p>opening of the river mouth and the exponential increase in the quantum and duration of influx of seawater into the estuary. The increased influx of seawater will increase the salinity of the wetland as well as impact the fresh water ecosystem of the Kaluveli lake and the creek.</p> <p>The committee has concluded that there will be no impact on the sanctuary merely because it is outside the default 10 km eco sensitive zone.</p> <p>The committee appears to have completely ignored these aspects.</p> <p>BirdLife Data Zone</p> <p>96TN Kaliveli.jpg (3751x2001) (wiienvi.nic.in)</p>
	<p>3.2- Paragraph 2: Since, it is outside the eco sensitive zone, the present project may not have any significant impact on the Kaliveli Bird Sanctuary.</p>	<p>The estuary is ecologically contiguous with the bird sanctuary. Moreover, the estuary and creek are as important bird areas as the sanctuary itself, given that it is a sheltered marine space by the bar mouth. eBird data shows this clearly, recording 164 bird species at the Kaliveli mouth itself, several of them globally threatened, migratory and protected under law -</p> <p>Yedaiyanthittu Estuary (இடையன் திட்டி கழிமுகம்), Viluppuram County, TN, IN - eBird Hotspot</p>
	<p>3.3- Paragraph 5: Other than this nothing like active mudflats, seagrass beds, sand dunes and salt marshes were not noticed at the proposed construction site.</p>	<p>At the Azhagankuppam project site during the survey, the committee observed vast stretches of oyster reefs where women from inland villages were picking oysters.</p> <p>Salt marsh vegetation like Sesuvium, Salicornia, Sueada, etc were also abundant along with young mangroves in the Alamparai Kuppam site. Oyster beds and birds were also seen at this site.</p>

		<p>At both project sites, hundreds of fiddler crabs, along with mudskippers, girdled horn snails, lugworms and waders like Ibises, Redshanks, Whimbrels and Curlews were seen (Supporting pictures below)</p> <p>All these indicate that these wetlands are highly biologically active. The committee has failed to mention these facts.</p>
	<p>3.3- Paragraph 7: No damages were made to these sand dunes and mudflats by the project proponent at present</p>	<p>Dumping of debris and building of access roads has happened on biologically active mudflats at the Azhagankuppam site.</p> <p>Access road to the Estuary mouth on the Alamparai kuppam site has been laid by flattening sand dunes.</p> <p>Women collecting oysters were observed during the survey. The committee took efforts to listen to the fisherfolk who wanted the harbour but did not interact with any of the villagers who are dependent on the inland wetlands which are being dredged/dumped on/destroyed.</p>

M. Yuvadeeban, Appellant.

Since the conservation of the Kaluvelu wetland complex is of immense significance and of interest to the community at large, it is felt that acknowledged experts in the field should also be consulted to obtain their views on the report given by the committee members.

The undersigned senior scientists, conservationists and researchers are familiar with the Kaliveli landscape consisting of the estuary, creek and the lake. They testify that the estuary and creek - where the harbours are proposed- are extremely ecologically sensitive areas, have biologically active mudflats, salt marshes, turtle nesting grounds and support rich bird and coastal biodiversity. They also went through the literature and research available on the place and photos/videos sent across by the appellant. They conclude that the joint committee report is riddled with fallacies, is unscientific and completely biased and its findings questionable . They, therefore, strongly urge for an independent and competent organization like the Bombay Natural History Society (BNHS) to conduct a thorough survey of the area to assess its ecological diversity and the impacts the harbours will have on it.

Signed by

Shekhar Dattatri, Former Member, National Board for Wildlife and Former Member, State Board for Wildlife (Tamil Nadu) - shekar.dattari@gmail.com

Prerna Singh Bindra, Former Member, Standing Committee, National Board for Wildlife - bindra.prerna@gmail.com

Priya Davidar, retired Professor, Pondicherry University, former member State Board for Wildlife, Tamil Nadu - pdavidar@gmail.com

Bittu Sahgal, Editor, Sanctuary Asia magazine, Former Member - National Board for Wildlife - bittusahgal@gmail.com

The Executive Committee and Members, **Madras Naturalists' Society** - madrasnaturalistssociety@gmail.com

T. R. Shankar Raman, Senior Scientist, Nature Conservation Foundation - trsr@ncf-india.org

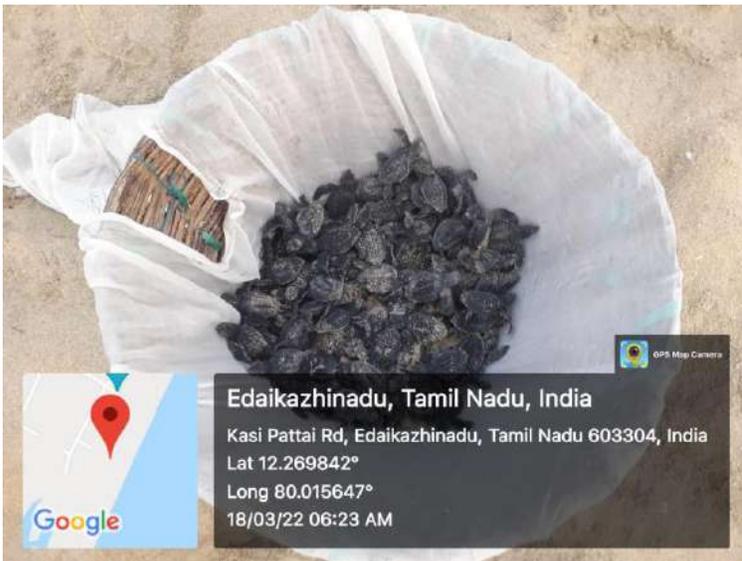
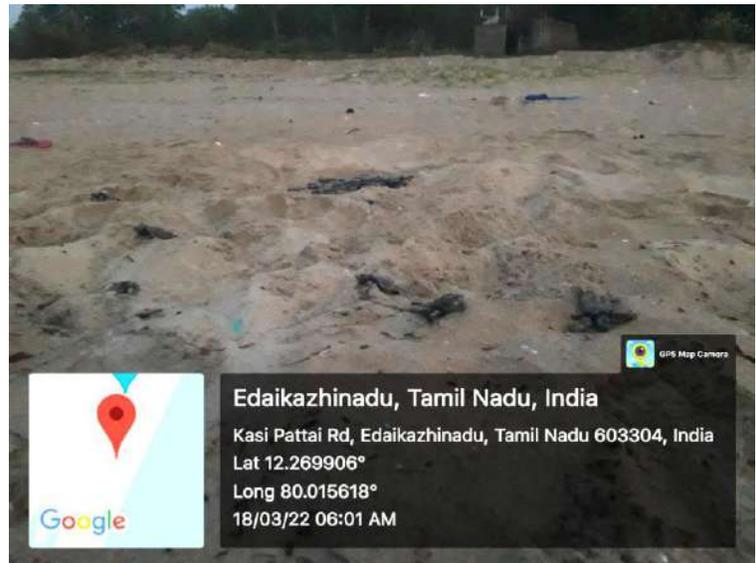
Divya Karnad, Foundation for Ecological Research Advocacy and Learning - div.karnad@gmail.com

Ravi Chellam, Wildlife Scientist, CEO - Metastring Foundation - ravi.chellam61@gmail.com

Rahul Muralidharan, Environment Hub, Krea University - rahul.muralidharan@atree.org

Aarthi Sridhar, Programme Head, Dakshin Foundation - arthi77@gmail.com

Suneha Jagannathan, Marine biologist, Dakshin Foundation - sunehajagan@gmail.com



Turtle nesting and emerging hatchlings at the project site on 18.03. 2022 – also emailed to the committee.



733

Turtle carcass, fresh turtle tracks and an active turtle nest observed on the day of the committee survey on 15.03.2022.



Migratory and shorebird congregations at the Kaliveli Estuary mouth – March 2022. The first photo was taken during the committee visit – the members also saw the birds thorough scope.



735

Seagrass within the Kaliveli Creek – taken during Monsoon, 2021. The sea grass proliferates only during the monsoon period and the committee cannot expect to see seagrass during summer.



Mudskippers, Girdled Horn Snails, Red Ghost Crab and Viola Hermit Crabs at the project sites in March 2022.



Oyster reefs in the project site and along the creek. Thousands of women from inland villages depend on it.





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Three-phase bird census in Tamil Nadu to commence on January 28

While the census is usually carried out in February, it has been decided to advance it to the last week of January when the bird numbers are expected to peak.



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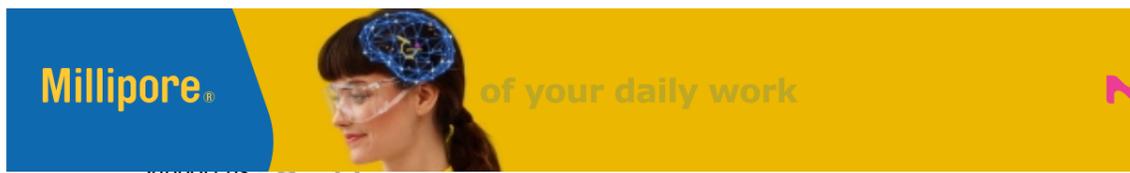
The first phase of bird census will be commenced by the Tamil Nadu forest department on January 28 and 29. The three-phase census is to be conducted in coordination with Bombay Natural History Society (BNHS), with technical support from Universal Eco Foundation and Indigenous Biodiversity Foundation (IBF), a non-profit organisation.

According to IANS, the census will be carried out by a 50-member team of volunteers from Myladuthurai and Trichy districts. Students of Pondicherry University will also be part of the survey. The survey will be carried out for four hours each day starting from 6 am to 10 am.

"The census will be carried out simultaneously at Kazhuveli bird sanctuary, Oussudu bird sanctuary, and Yedayanthittu estuary. The participants will be divided into groups and 12 transect lines are planned, including eight in Kazhuveli and two each in Yedayanthittu and Oussudu," Villupuram District Forest Officer Sumesh Soman told IANS.

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The census will be covering important bird areas adjoining the sanctuaries and will be conducted in accordance with international norms.

Forest officials said that during a pre-bird census conducted by a team led by BNHS scientist S Balachandran on January 14 and 15, as many as 47 bird species were spotted. According to a [The New Indian Express](#) report, the pre-census survey estimated the presence of seven lakh bird visitors in the southern coasts of Tamil Nadu. It further reported that the census was usually carried out in February, but it was decided to advance it to the last week of January, which is when the bird numbers are expected to peak.

Forest Department officials have said that the second phase of the bird census will cover inland water birds and the third phase will cover terrestrial birds, the dates for which will be finalised soon.

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Table tennis player Vishwa Deenadayalan dies in accident on way to tournament

Vishwa was to represent India at the WTT Youth Contender at Linz, Austria, from April 27.

Annexure- A70

To,
The Chairperson
Tamil Nadu State Coastal Zone Management Authority
O/o Principal Secretary to Government, Environment and Forests Department
Secretariat
Fort St. George
Chennai 600009

To,
Member Secretary
Tamil Nadu Coastal Zone Management Authority
O/o Director, Environment and Forests Department, GoTN
Ground Floor, Panagal Maaligai
Saidapet
Chennai 600015

Date: 29/09/2020

Subject: Request to Revalidate CRZ Areas in Map No. 98 (D 44 U3/SW) and Map No. 95 (D 44 T 16/NE) Belonging to the Kazhiveli Backwaters in Chengalpattu (Old. Kanchipuram) District

Sir/Madam,

It has come to our notice that the CRZ areas demarcated in Kazhiveli Backwaters area in Map No 98 (D 44 U3/SW) and Map No. 95 (D 44 T 16/NE) of the Coastal Zone Management Plan prepared under CRZ Notification 2011 has erroneously demarcated some CRZ 1A (Ecologically Sensitive Areas) as CRZ 1B (Intertidal Zones).

Simple ground truthing, and consultations with local fisher folk who are adept with the local bio-diversity shows that some areas in these sheets are not intertidal areas but areas of ecological importance, such as sea grass beds, mud flats, oyster beds, mangroves etc. This raises the suspicion that the Ecologically Sensitive Areas (ESAs) and other natural features have been demarcated without ground truthing. No justifications for the same or any written explanations have been provided either.

Hence, we request Tamil Nadu Coastal Zone Management Authority to immediately call upon National Centre for Sustainable Coastal Management (NCSCM) to revalidate Map No. 98 (D 44 U3/SW) and Map No. 95 (D 44 T 16/NE) and make necessary changes.

We also request TNSCZMA to adhere to the mandate laid down under the CRZ Notification 2011 and ask NCSCM to provide written explanation/justification along with the maps.

Sincerely,

J. Pranth

Prasanth J

No 92, 3rd cross Street,

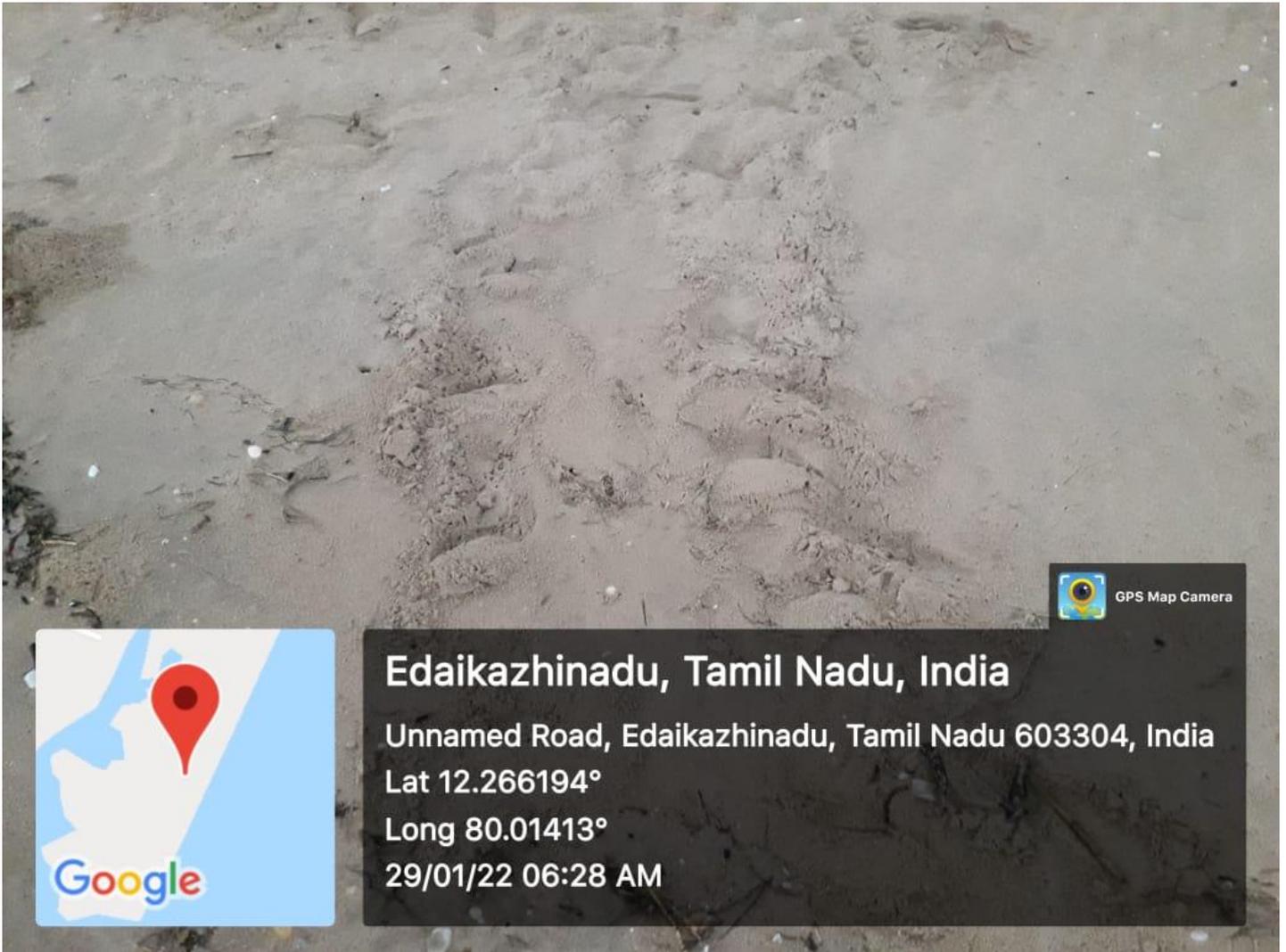
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Besant Nagar,

Chennai - 600090.



Alambarai Nesting Details with GPS Points



Edaikazhinadu, Tamil Nadu, India

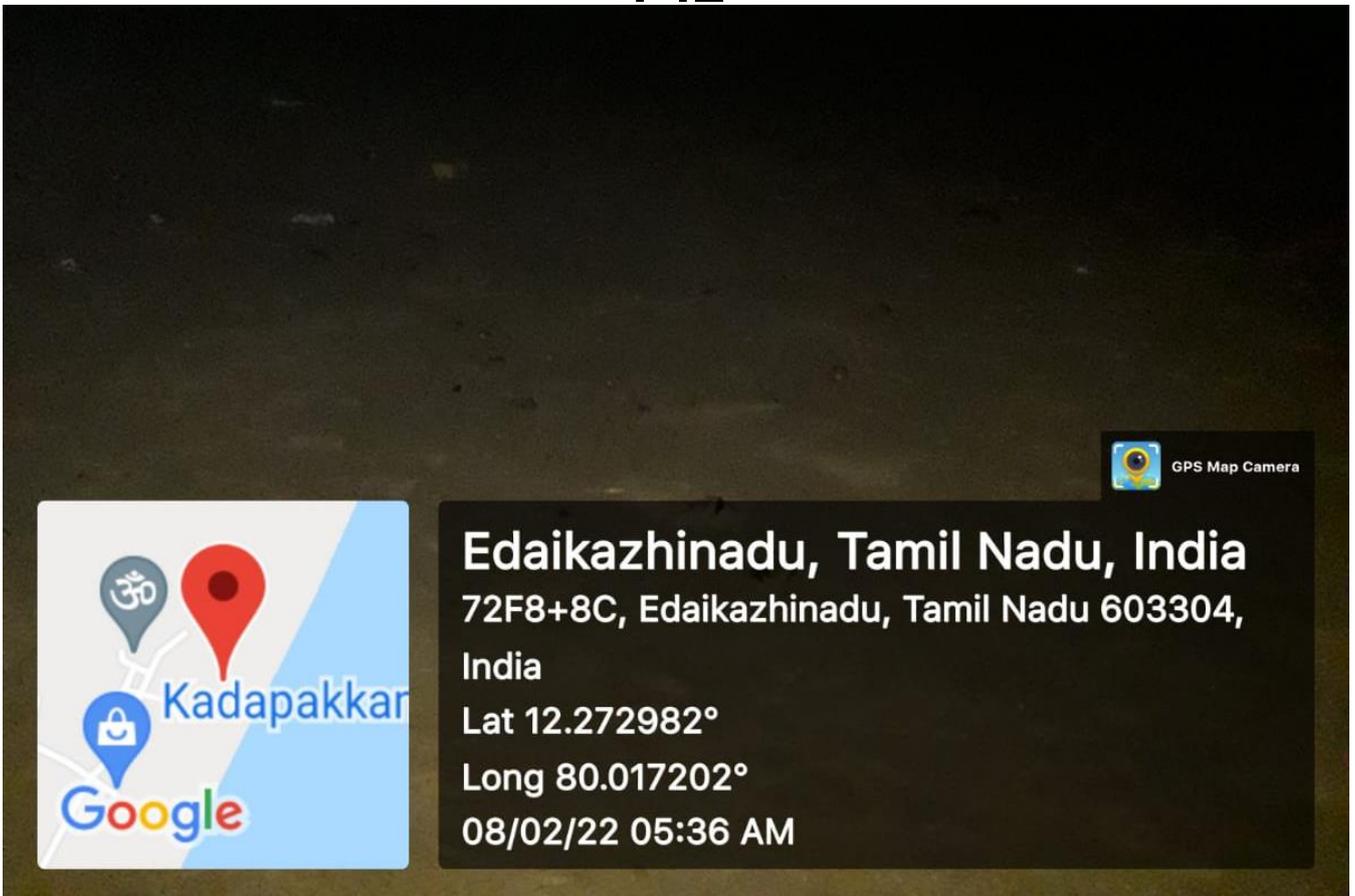
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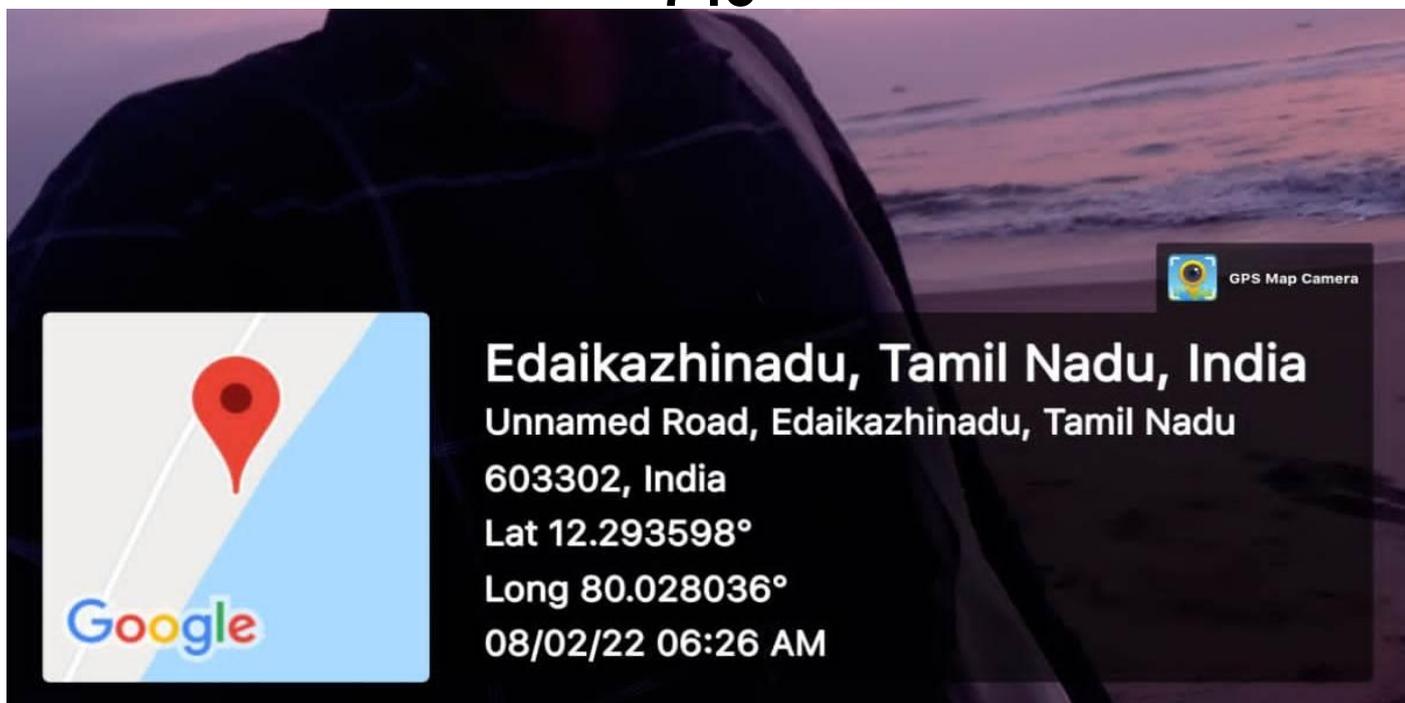
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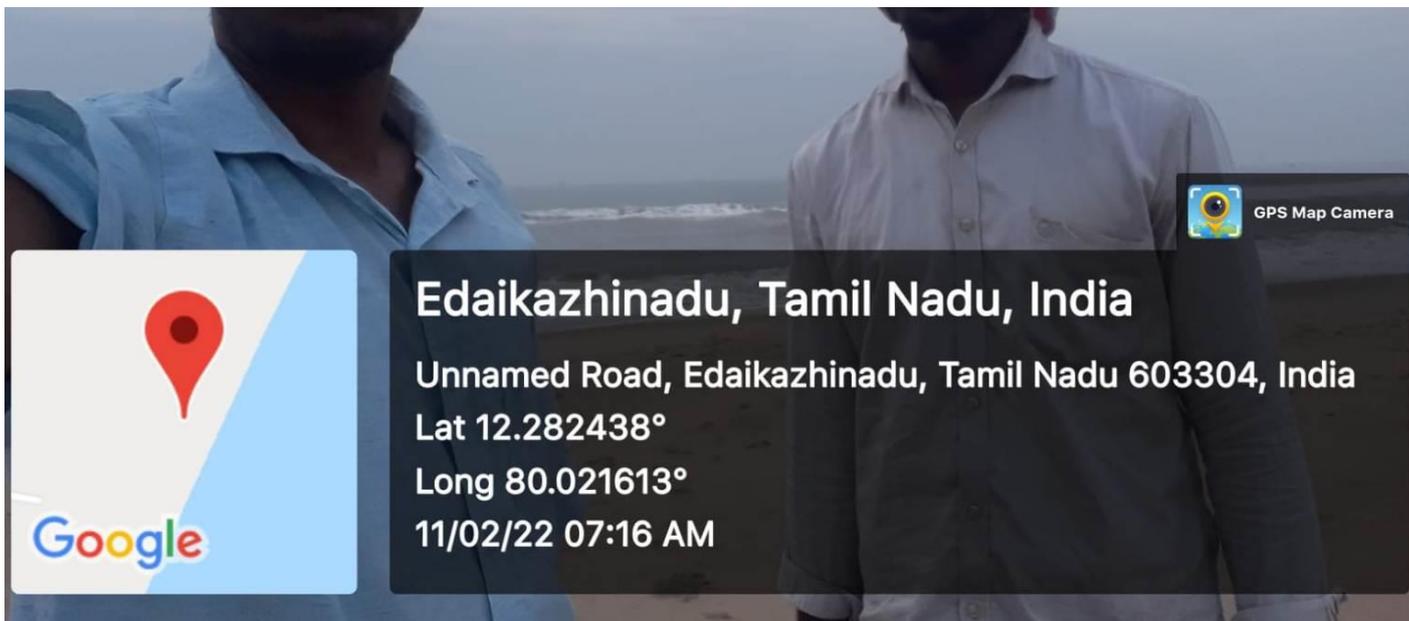
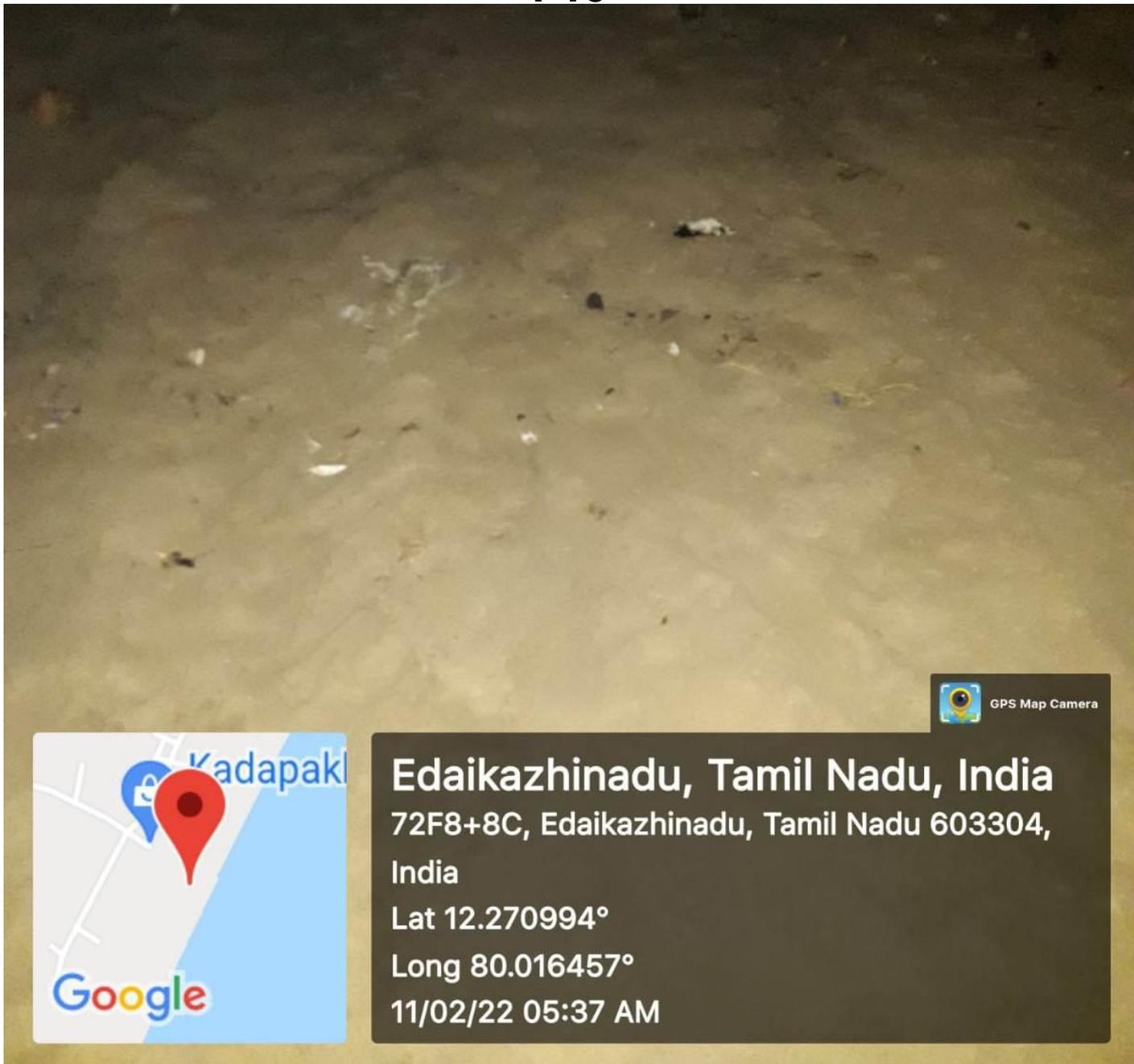
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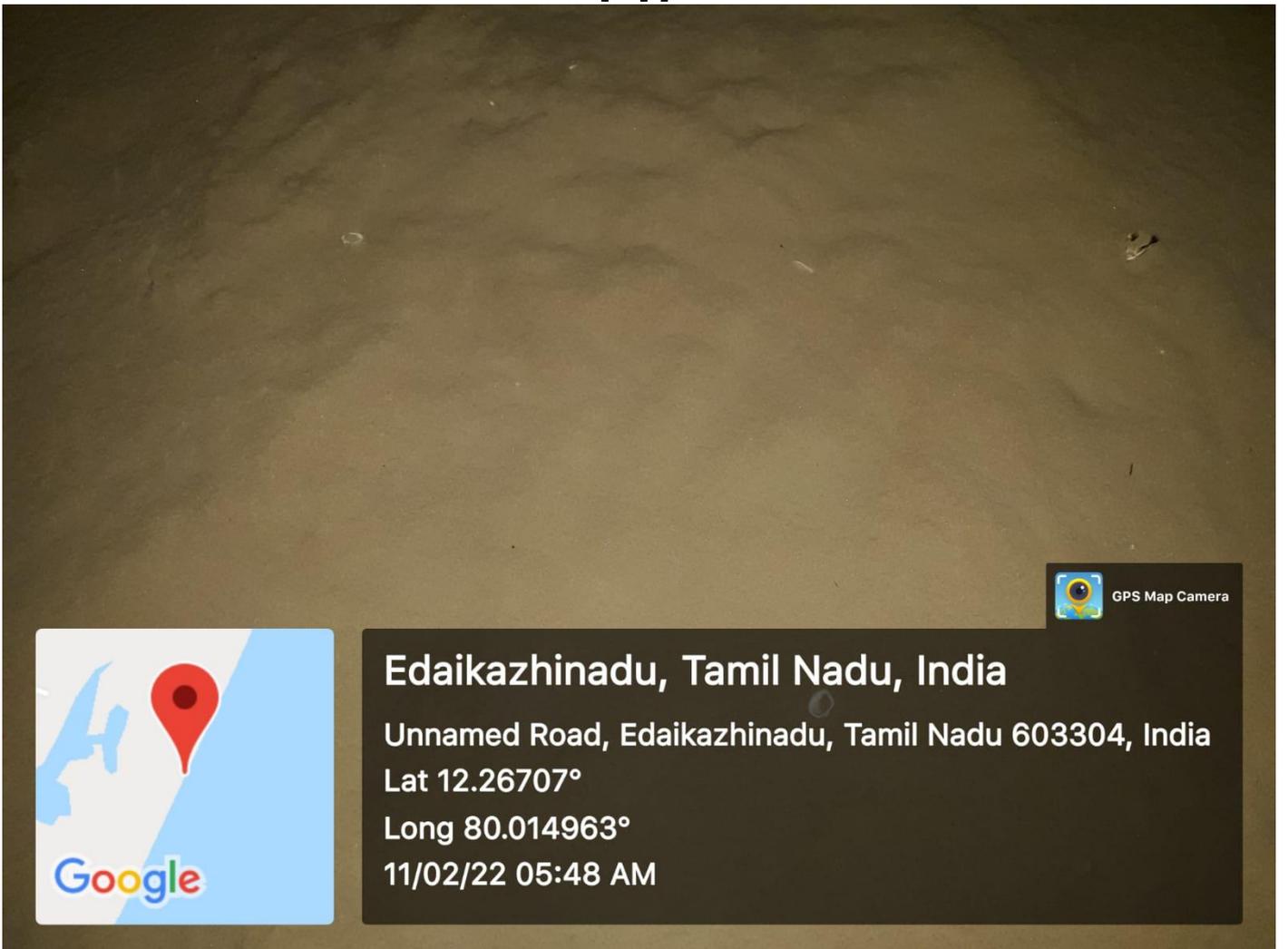
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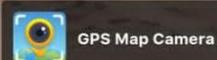
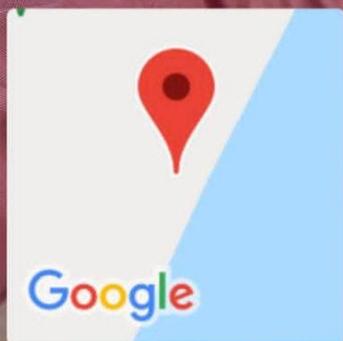
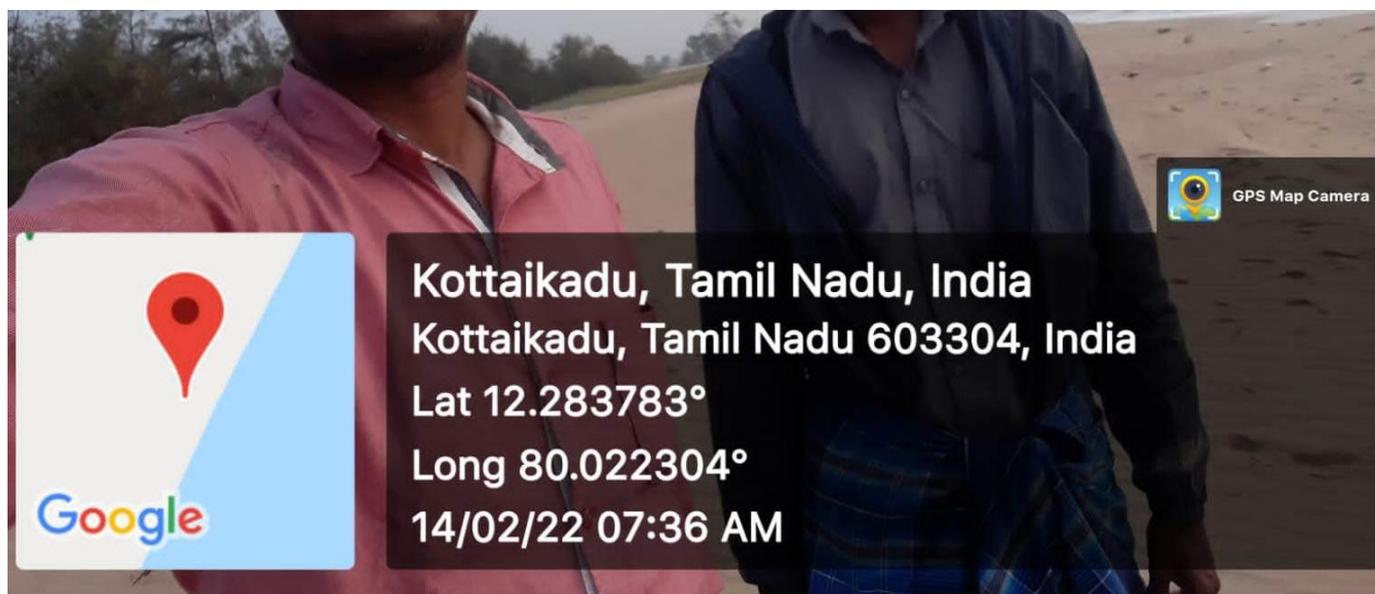
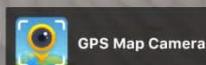
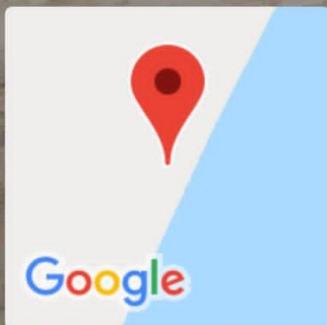
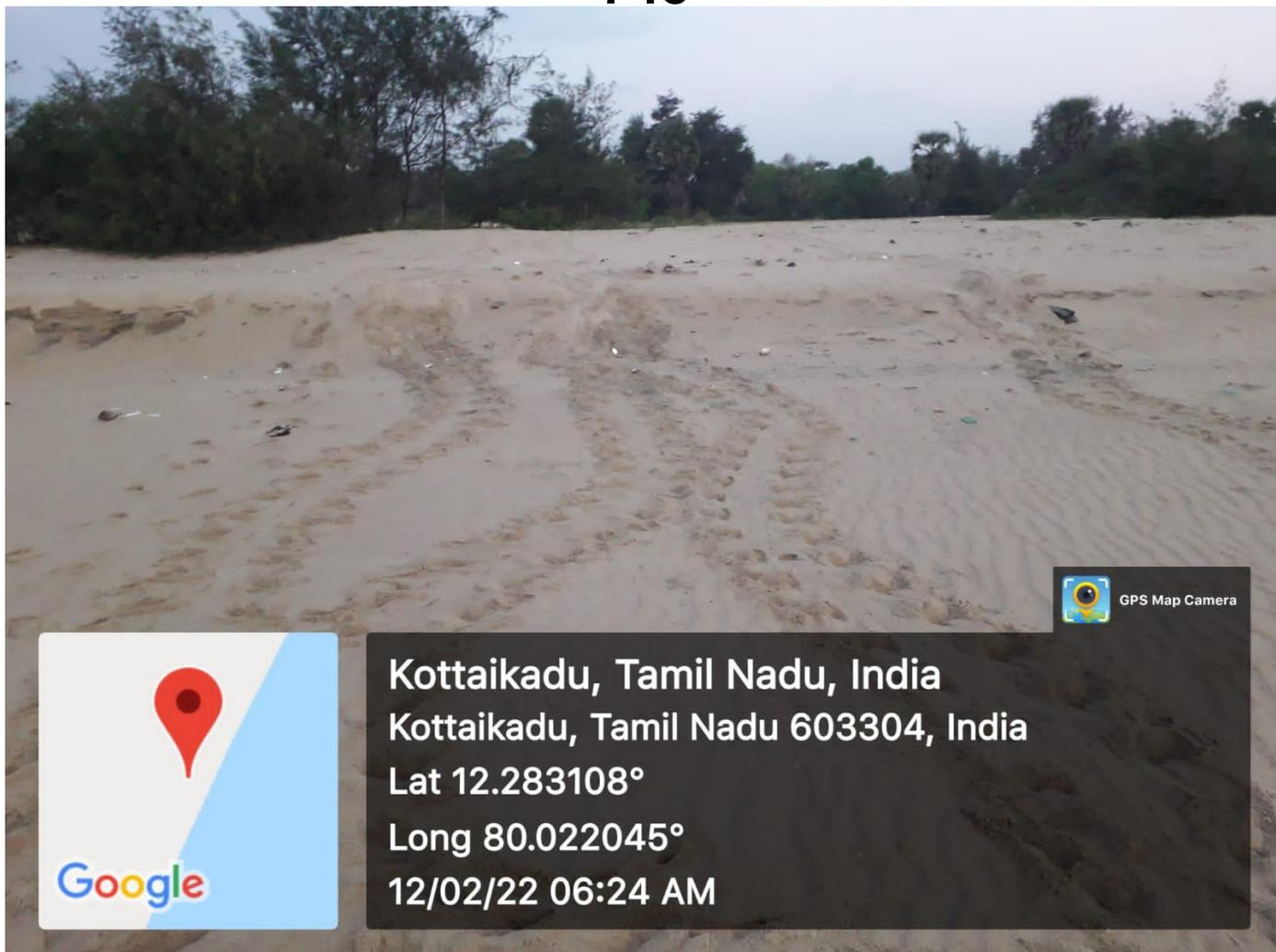
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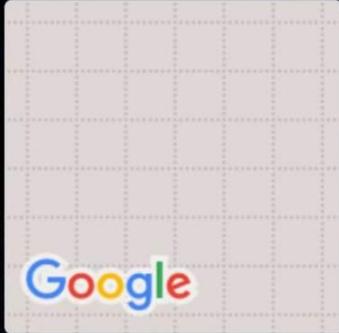
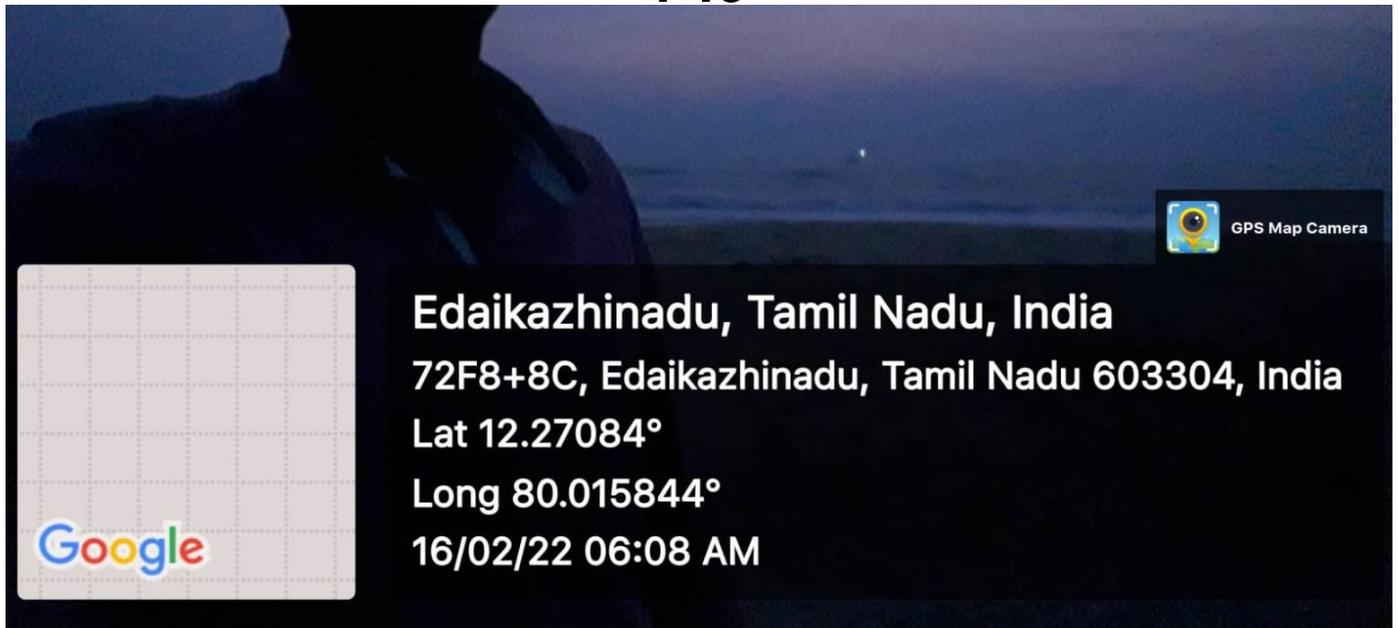
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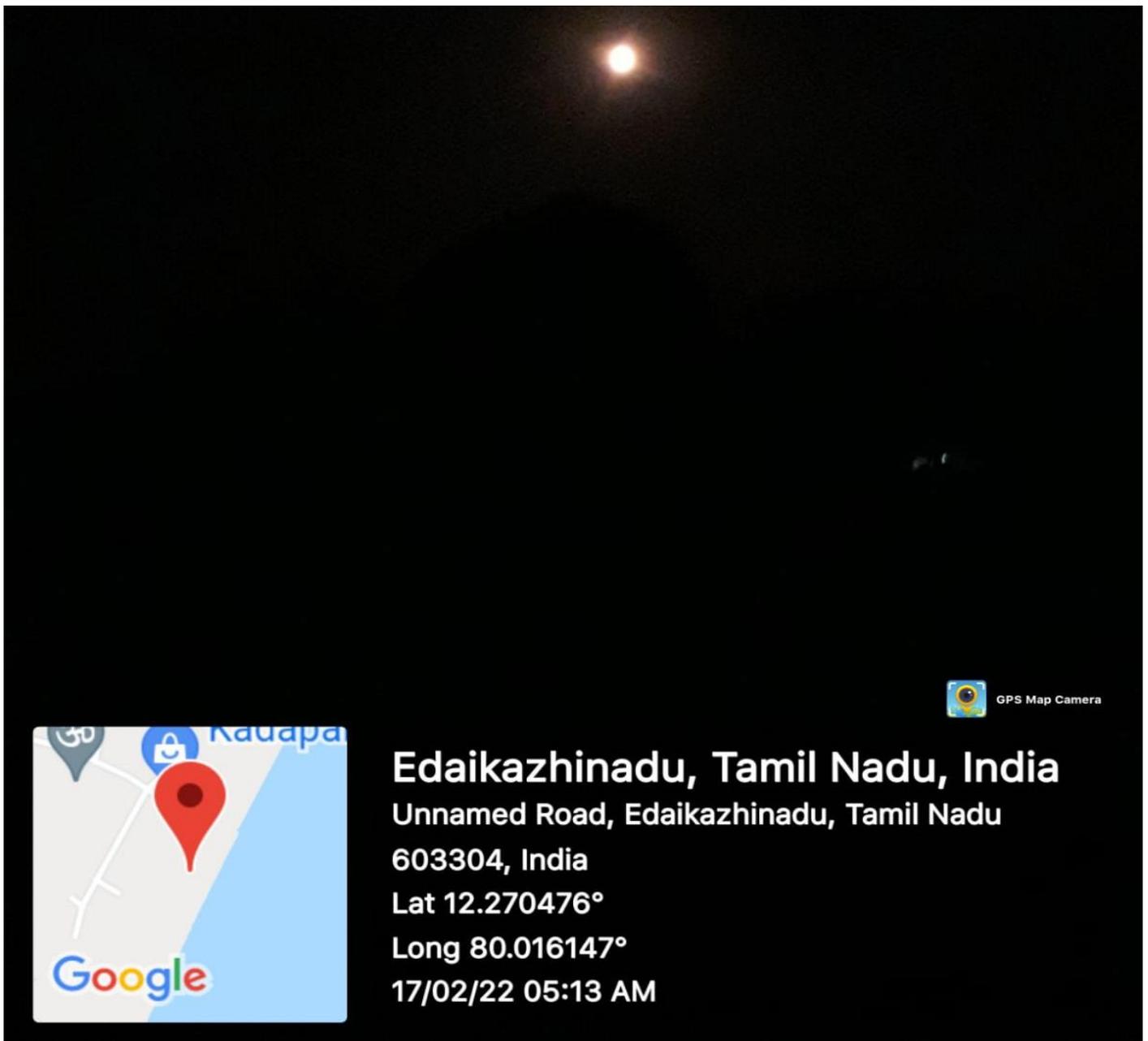
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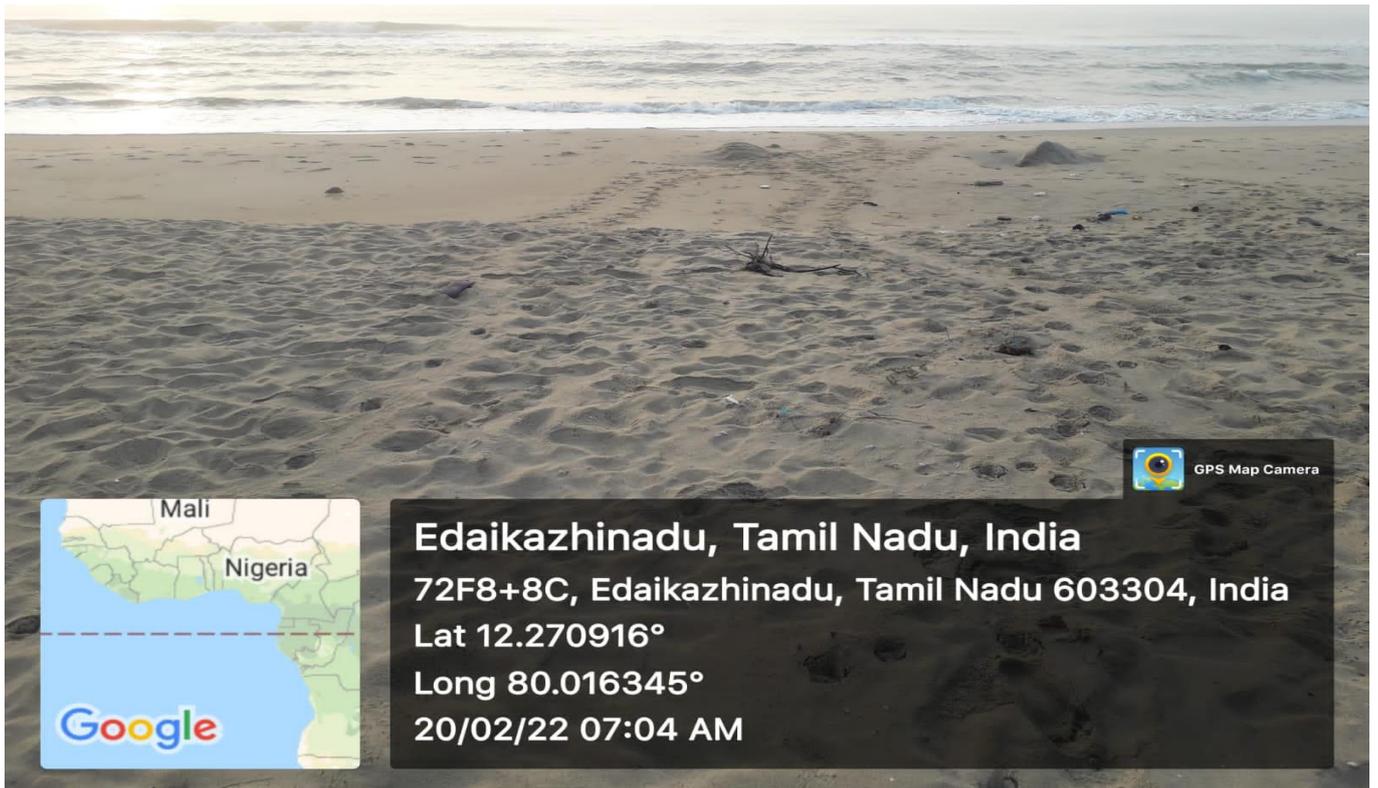
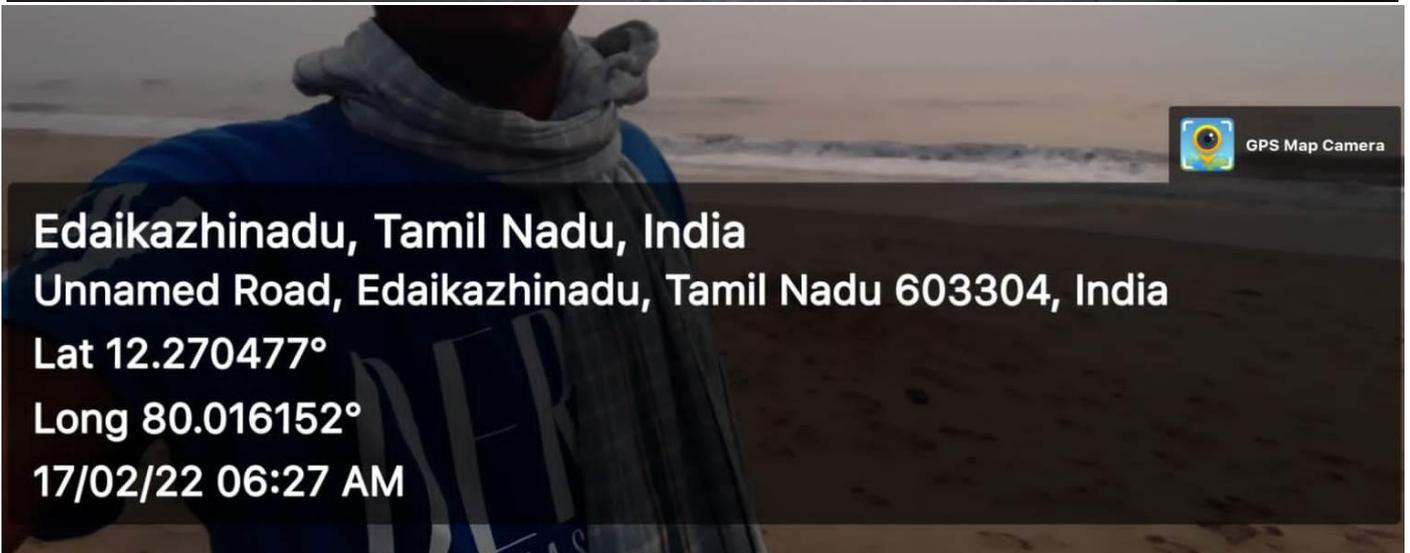
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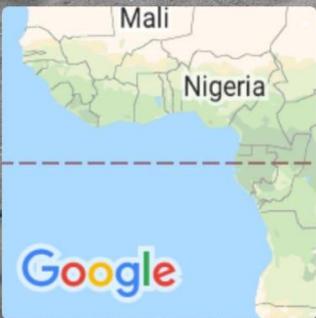
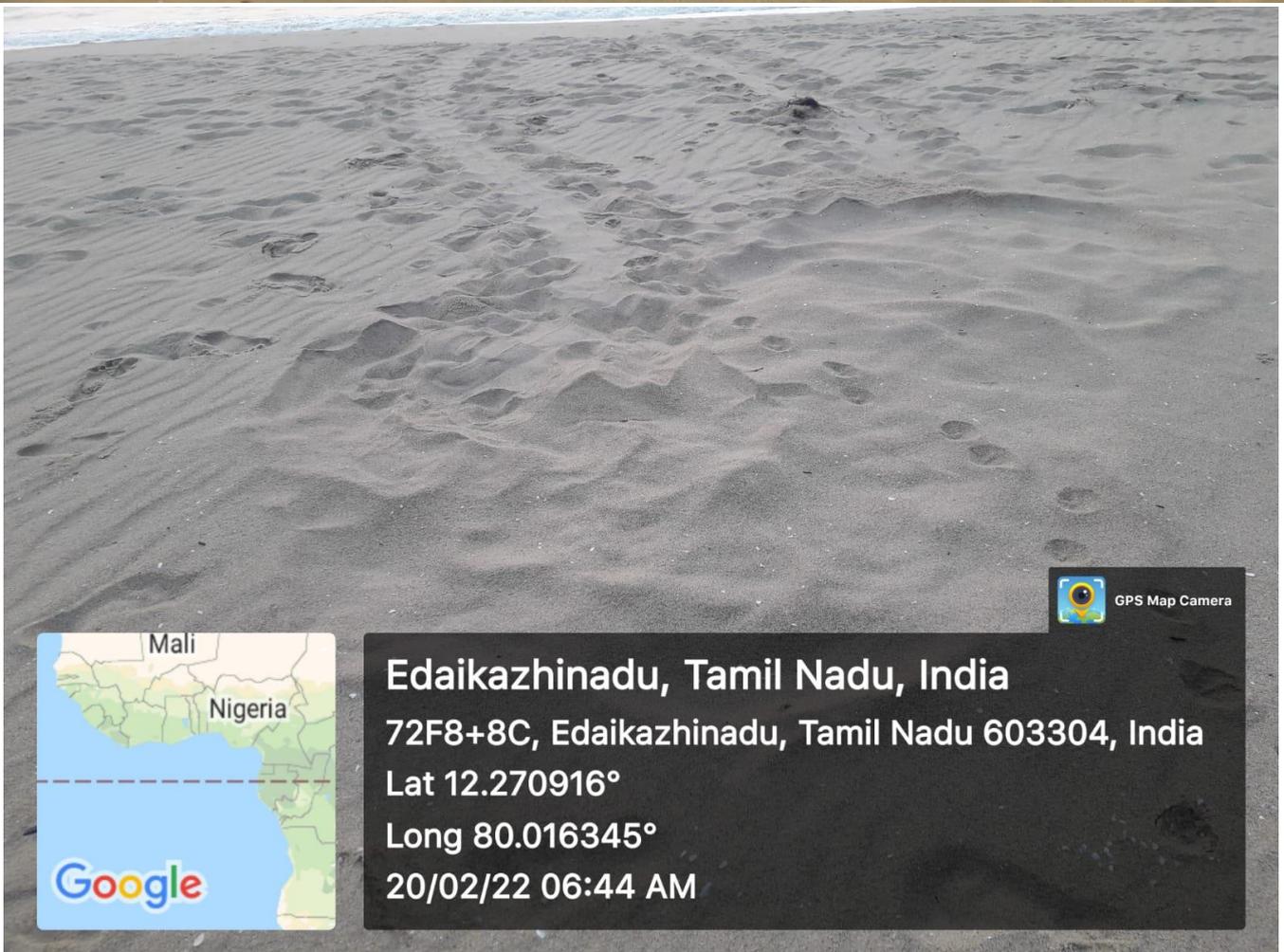
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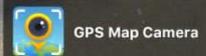
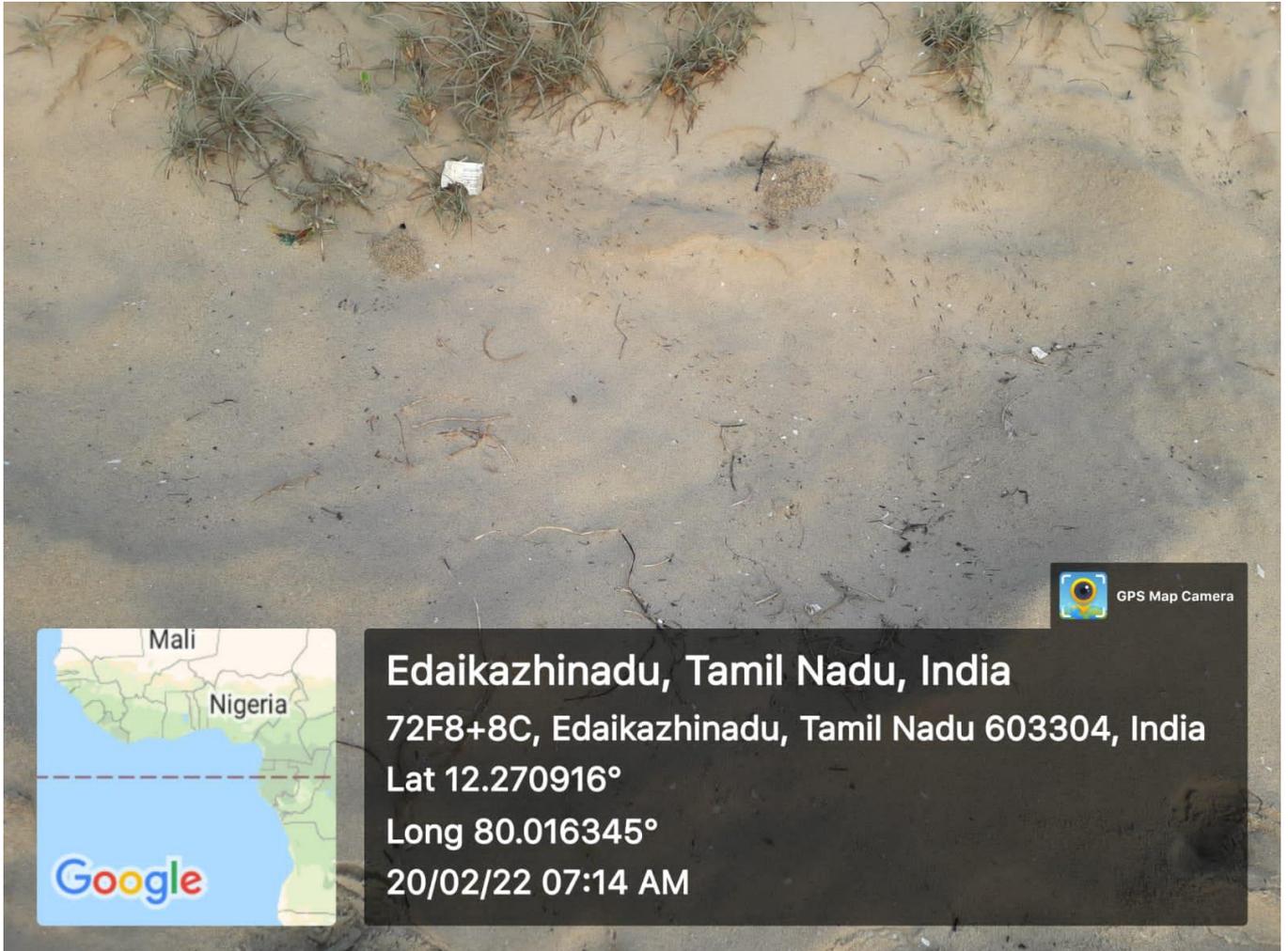
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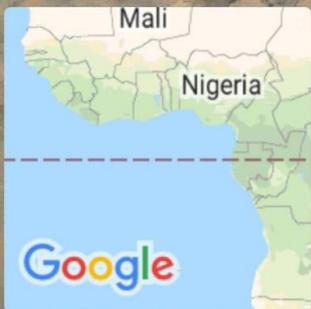
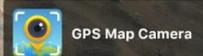
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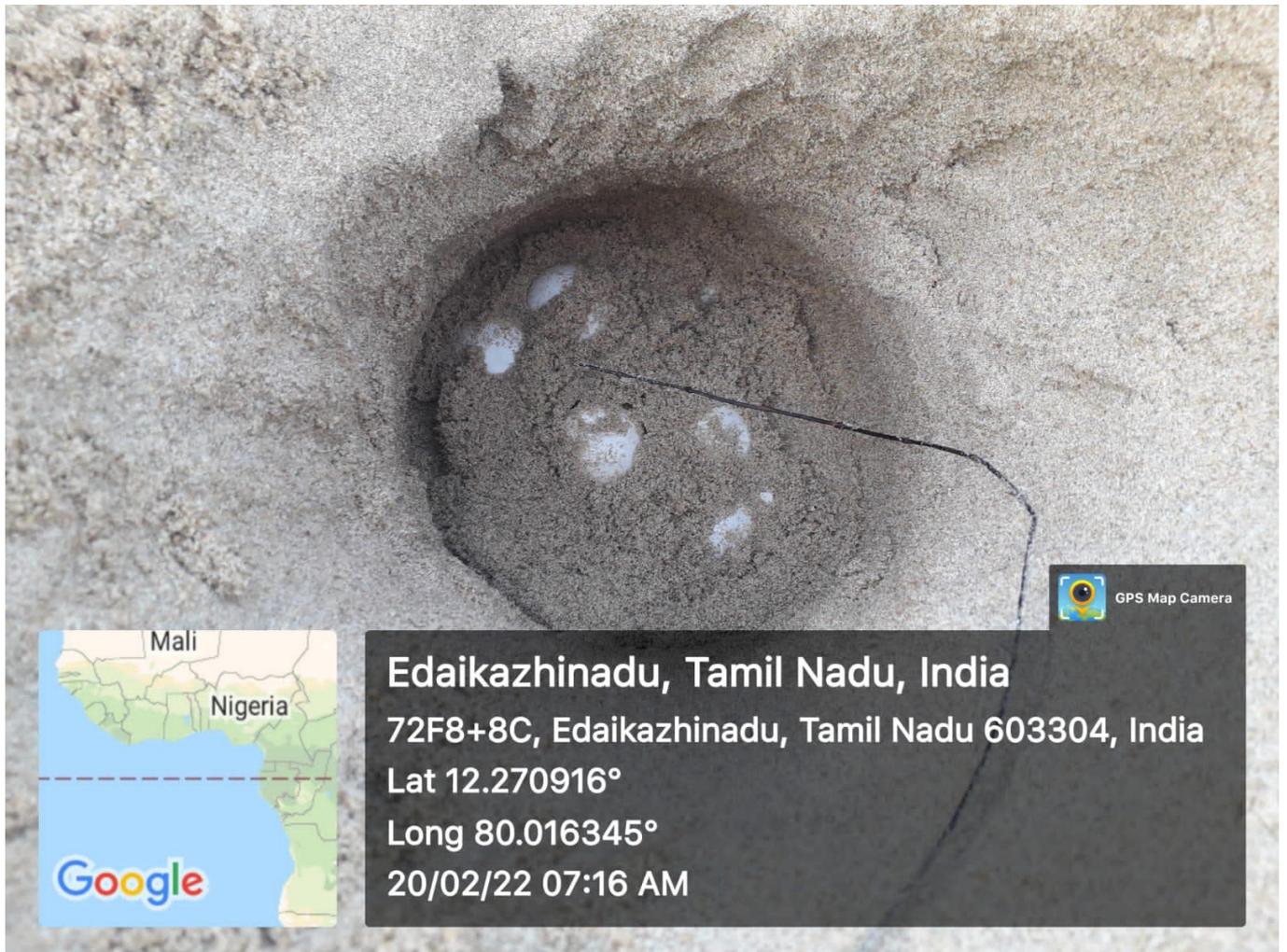


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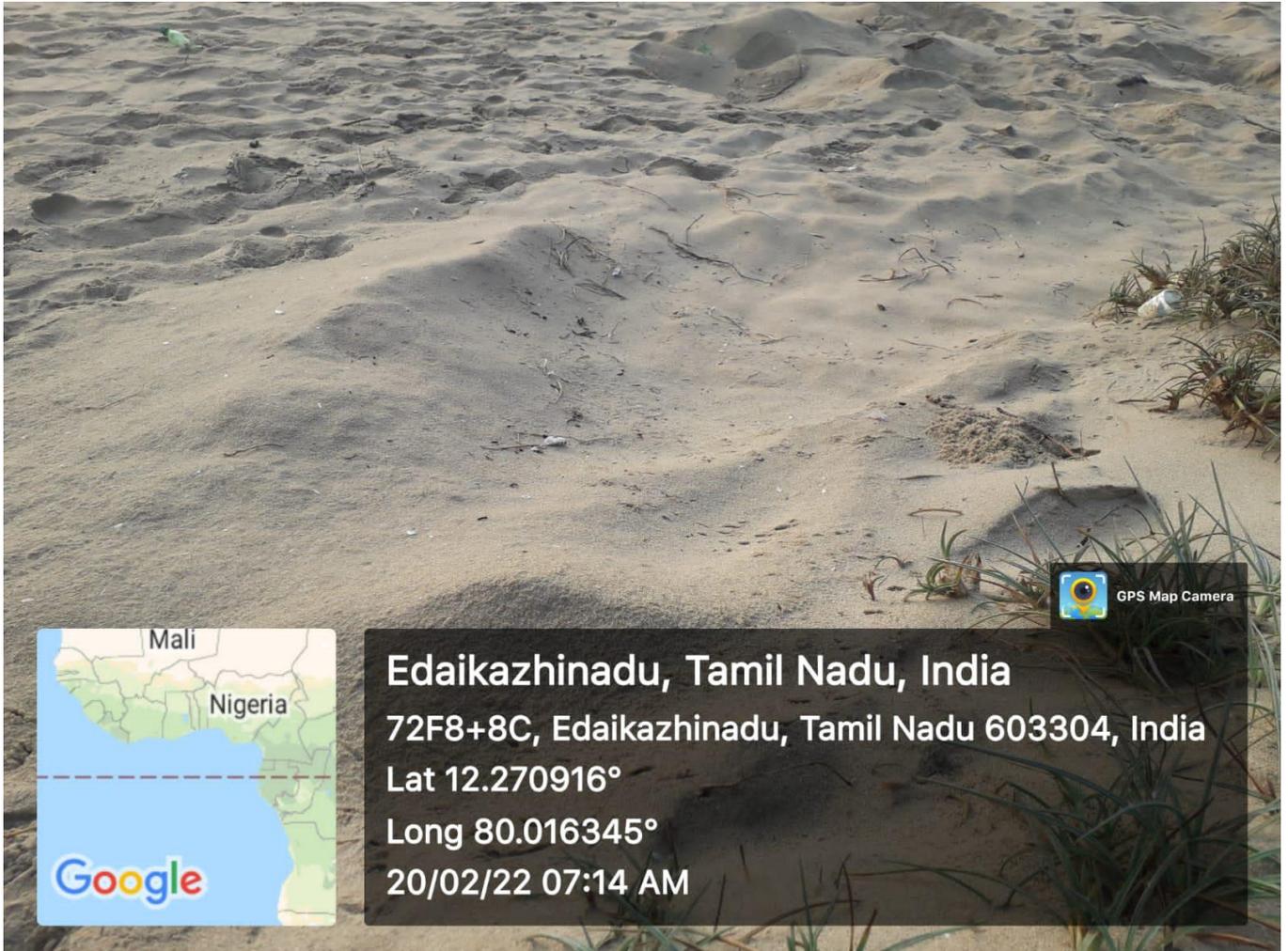
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Edaikazhinadu, Tamil Nadu, India

72F8+8C, Edaikazhinadu, Tamil Nadu 603304, India

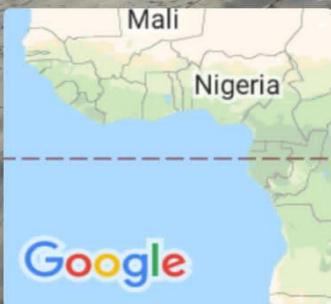
Lat 12.270916°

Long 80.016345°

20/02/22 07:24 AM



757



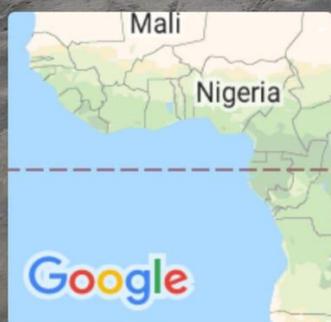
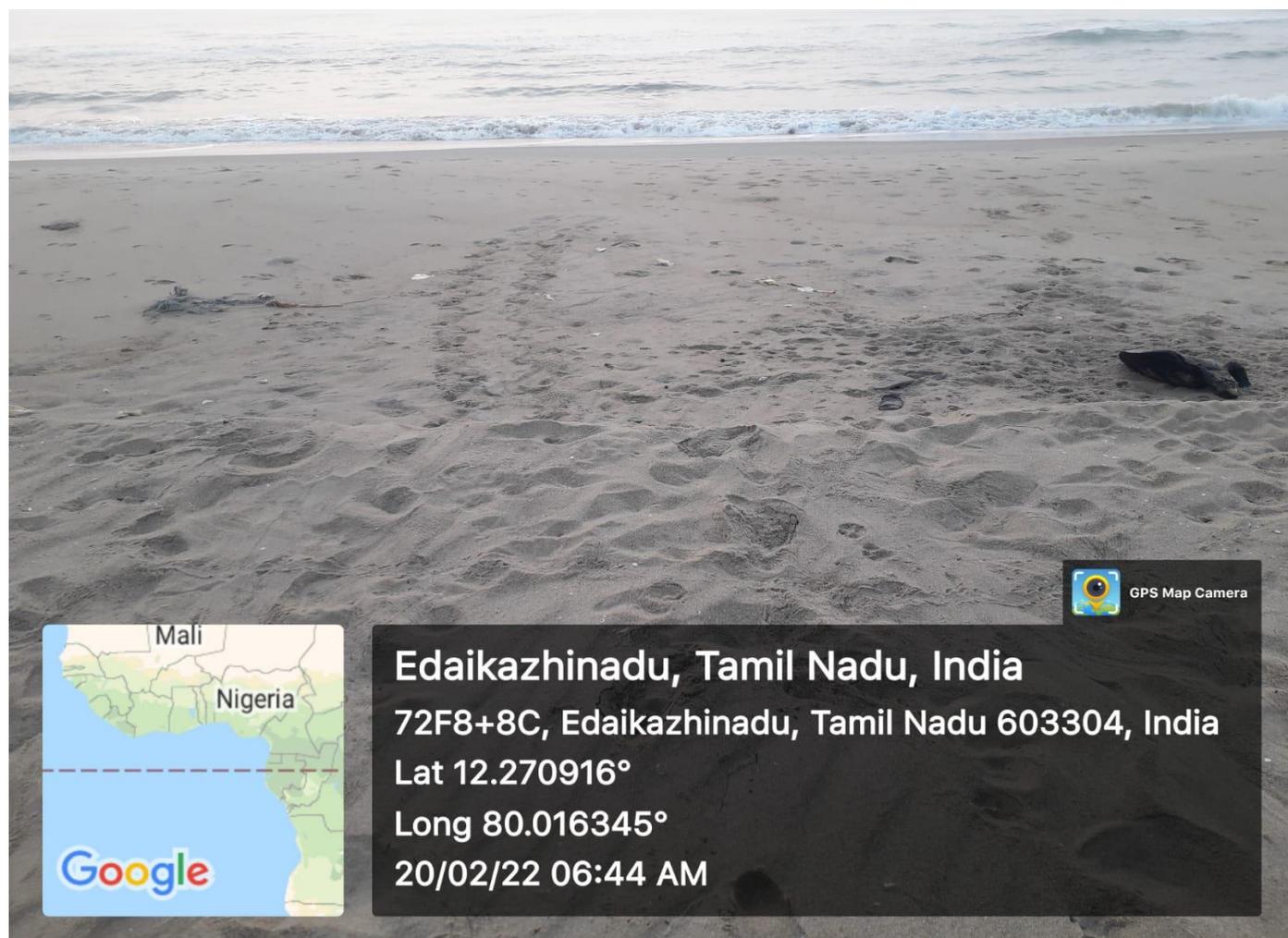
Edaikazhinadu, Tamil Nadu, India

72F8+8C, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.270916°

Long 80.016345°

20/02/22 07:04 AM



Edaikazhinadu, Tamil Nadu, India

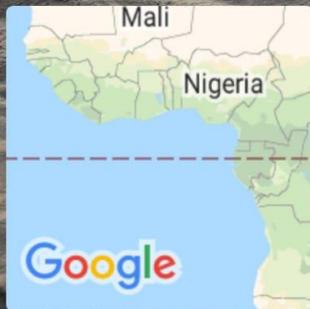
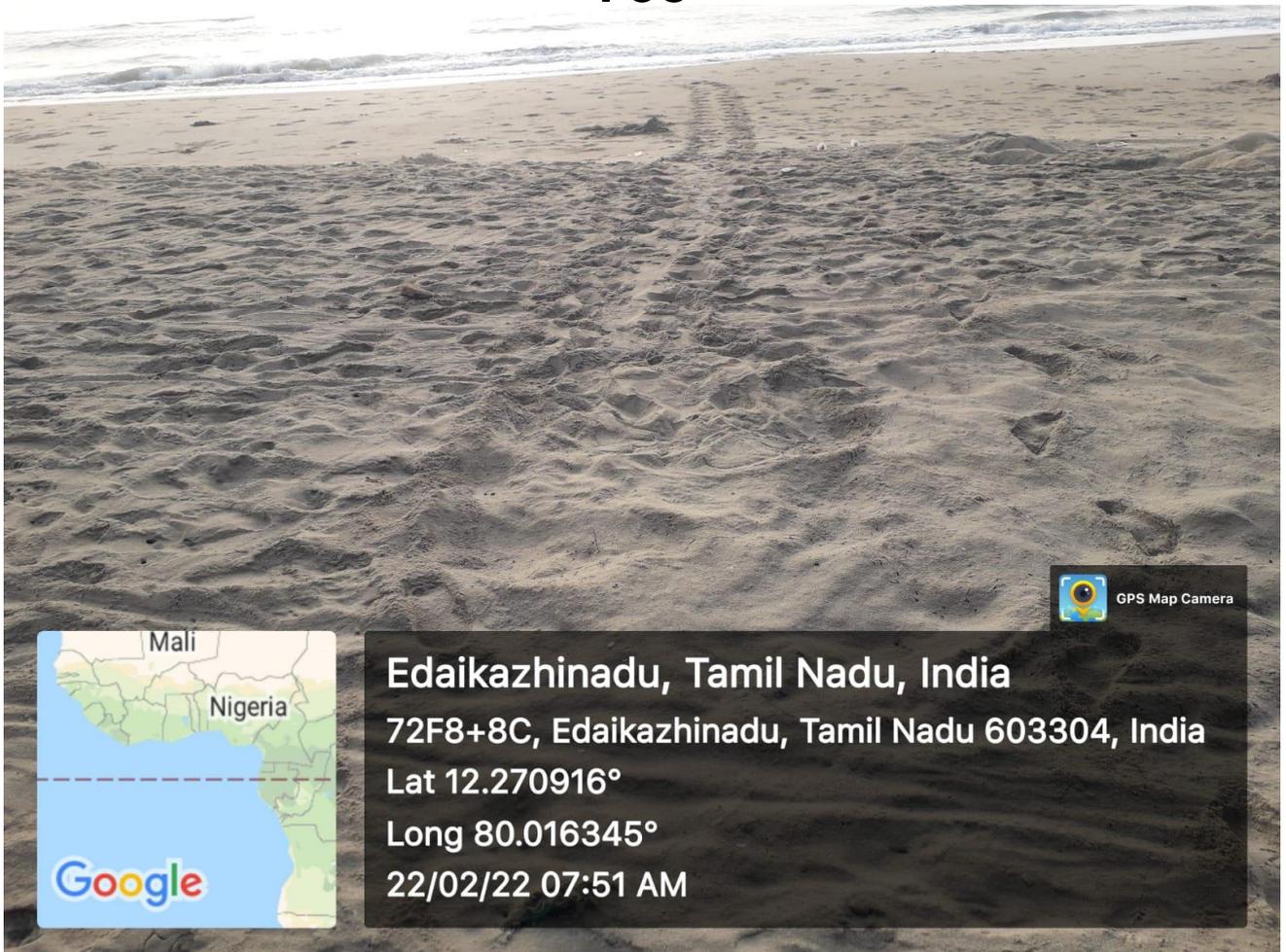
72F8+8C, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.270916°

Long 80.016345°

20/02/22 06:44 AM

758



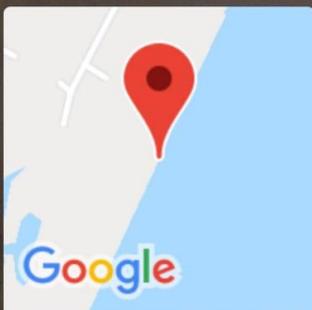
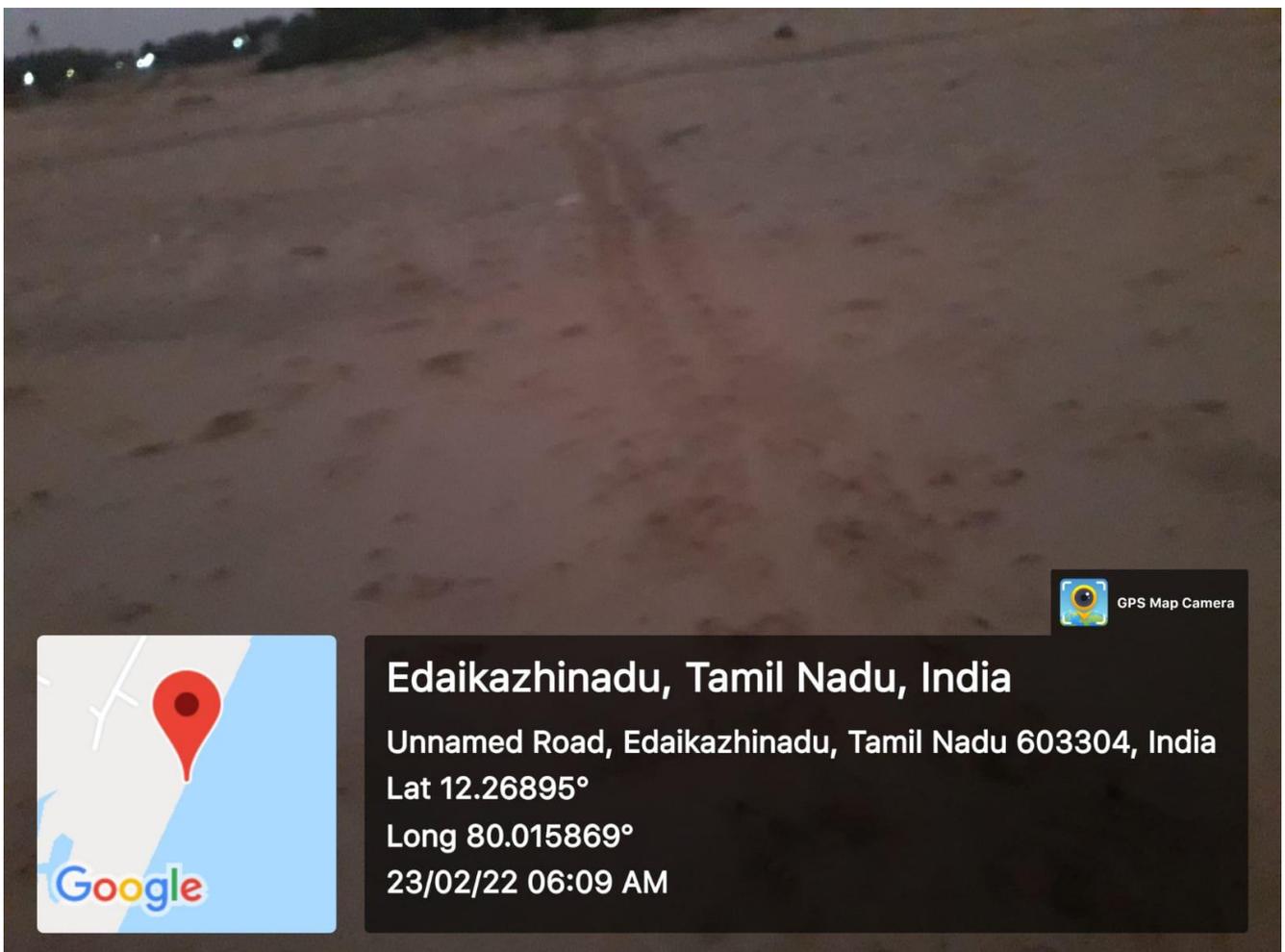
Edaikazhinadu, Tamil Nadu, India

72F8+8C, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.270916°

Long 80.016345°

22/02/22 07:51 AM



Edaikazhinadu, Tamil Nadu, India

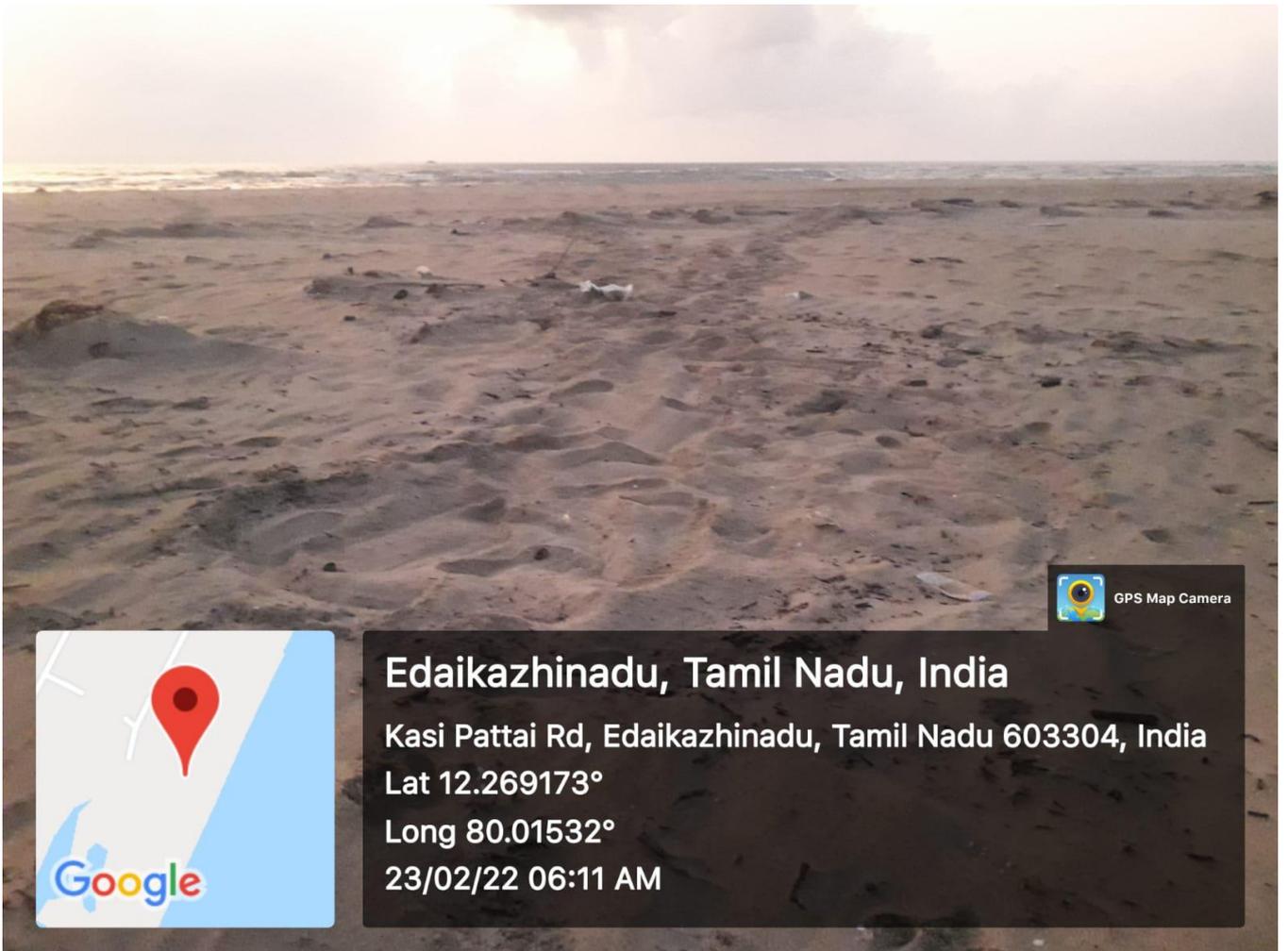
Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.26895°

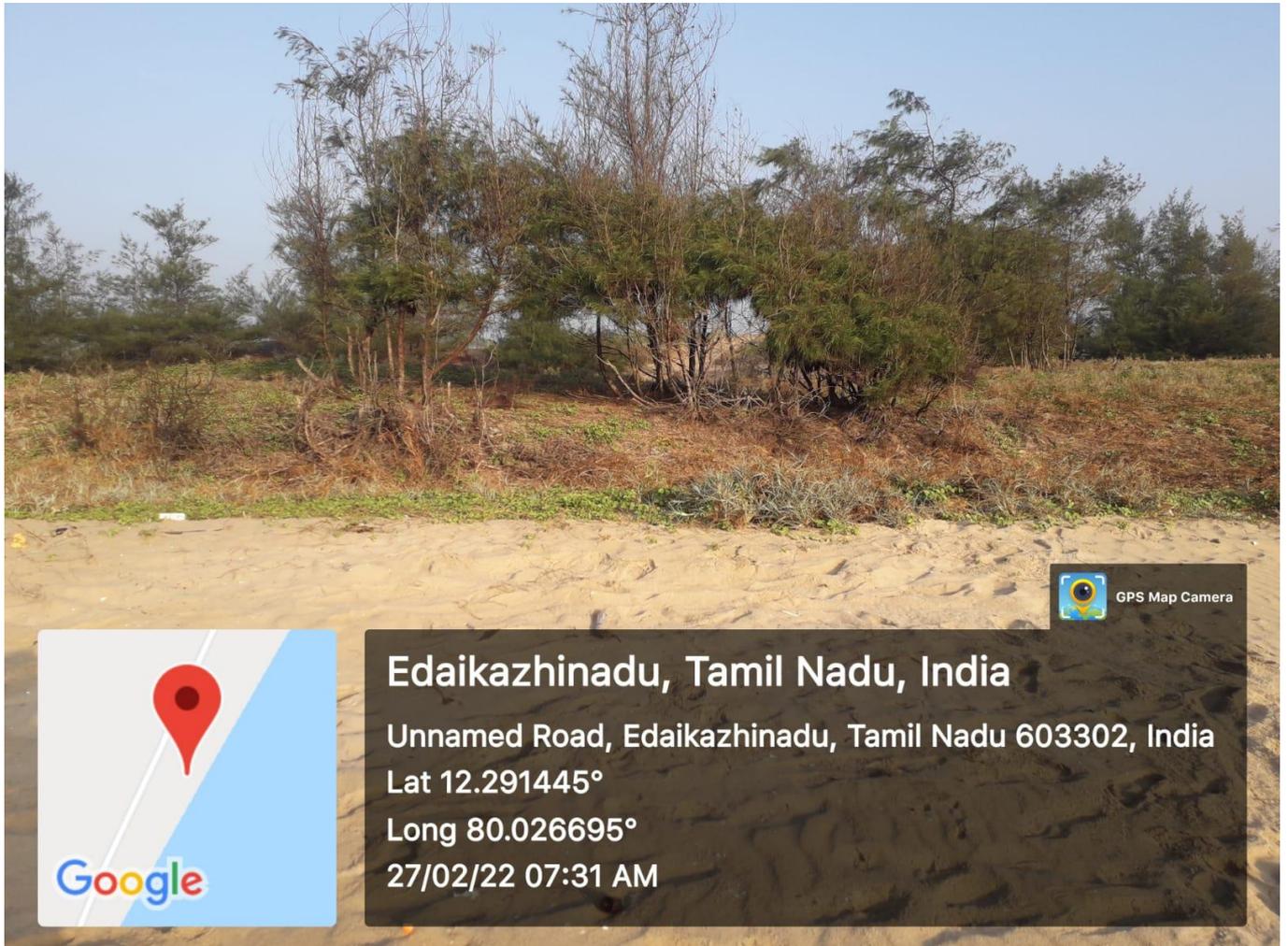
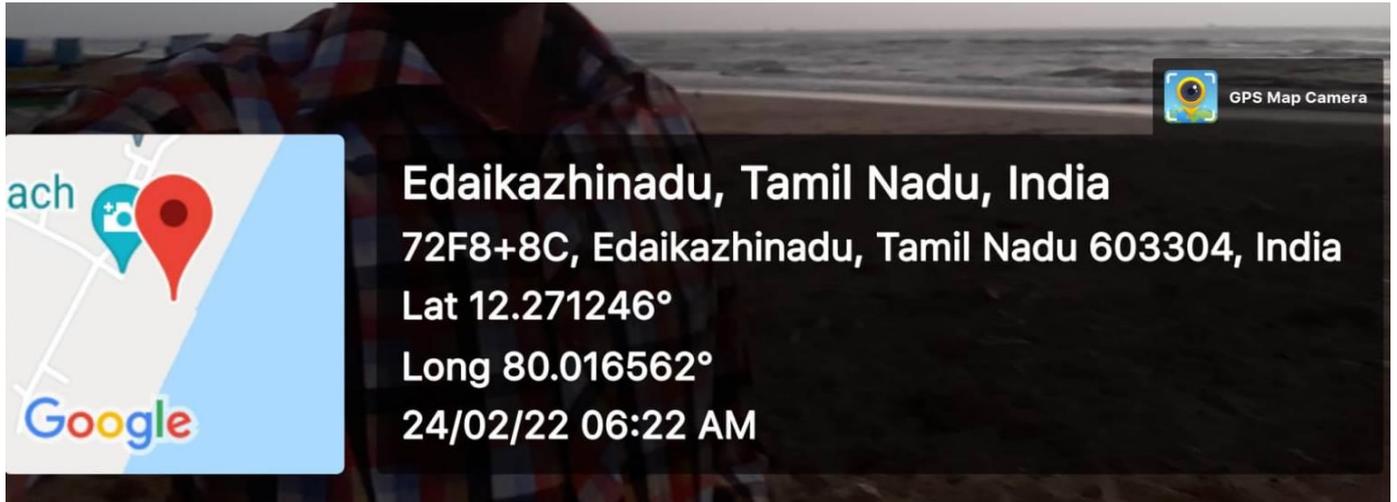
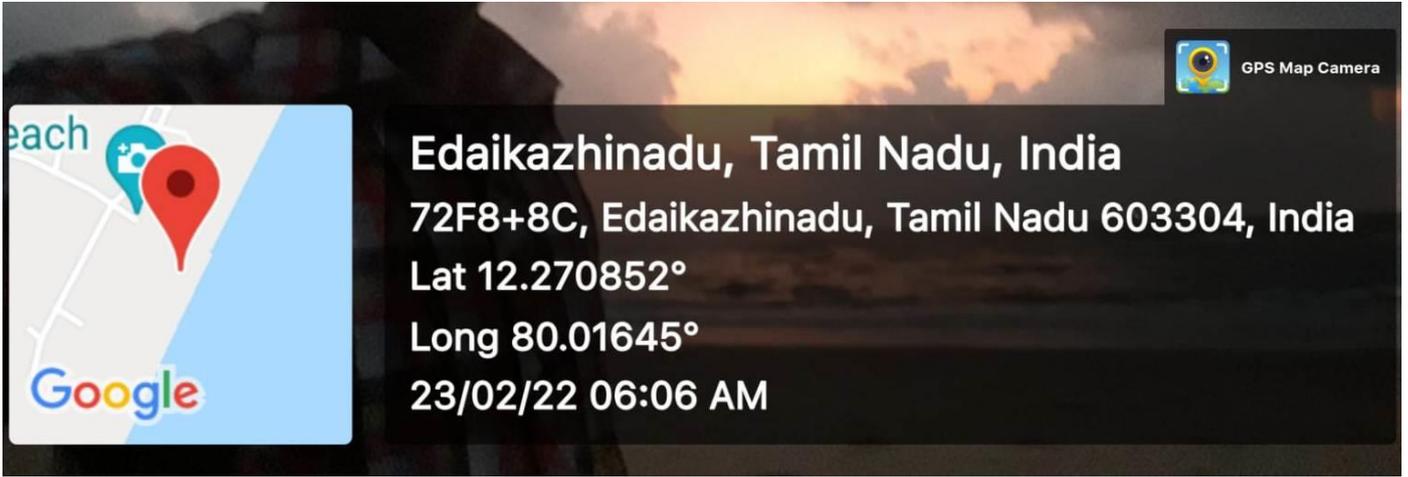
Long 80.015869°

23/02/22 06:09 AM

759



760



761



Edaikazhinadu, Tamil Nadu, India

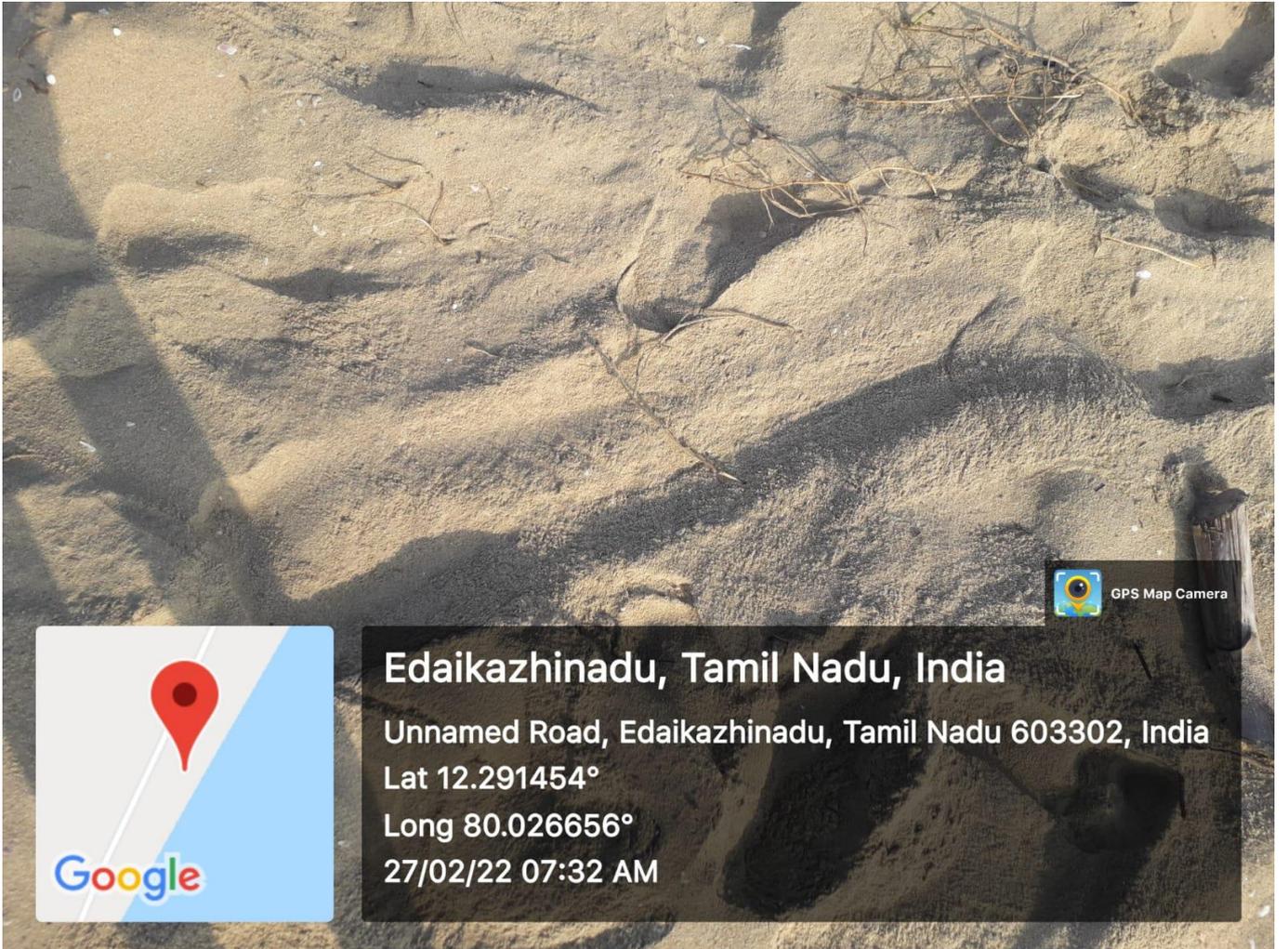
Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.2754°

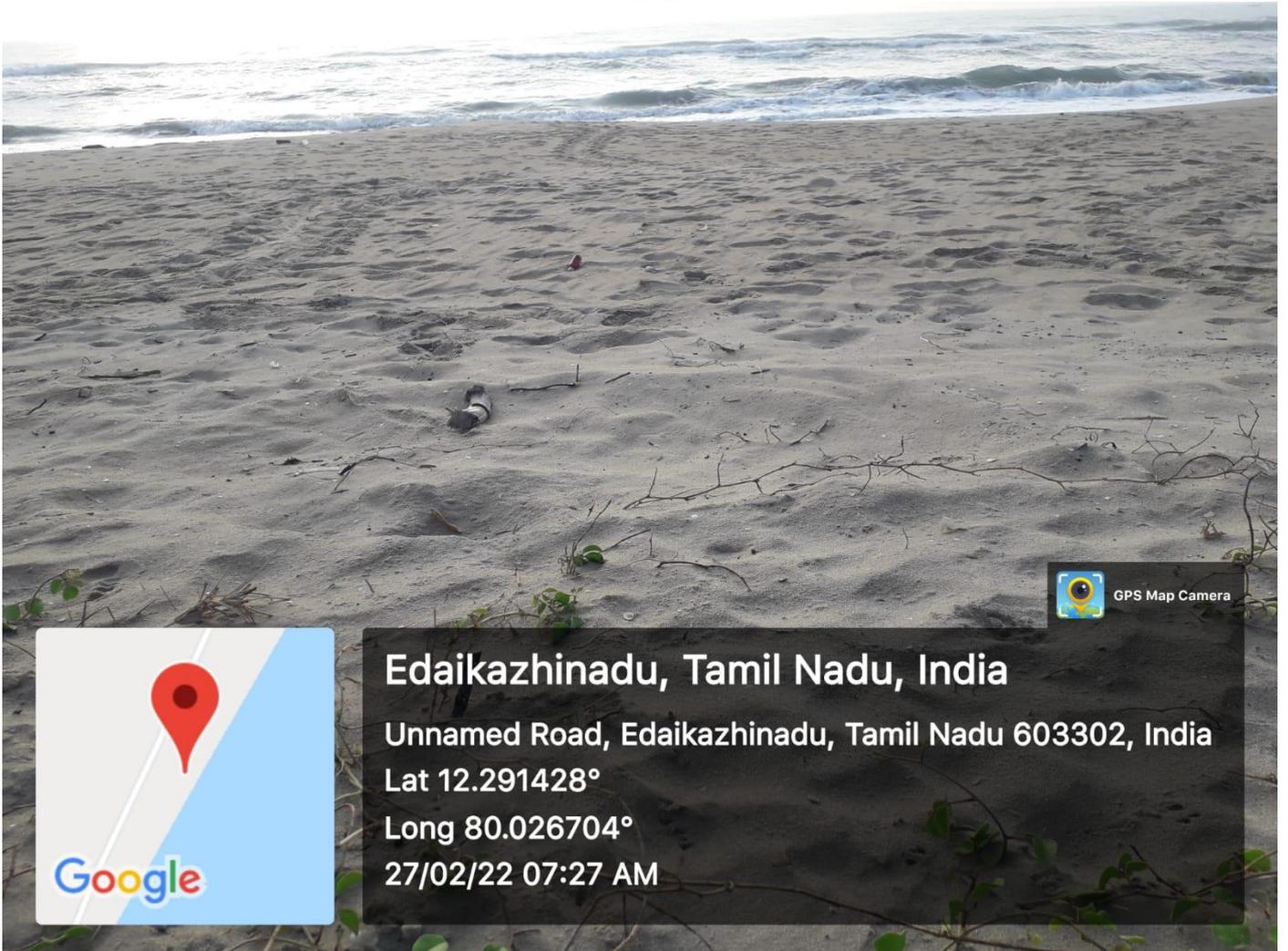
Long 80.018423°

27/02/22 06:24 AM





763



Edaikazhinadu, Tamil Nadu, India

Unnamed Road, Edaikazhinadu, Tamil Nadu 603302, India

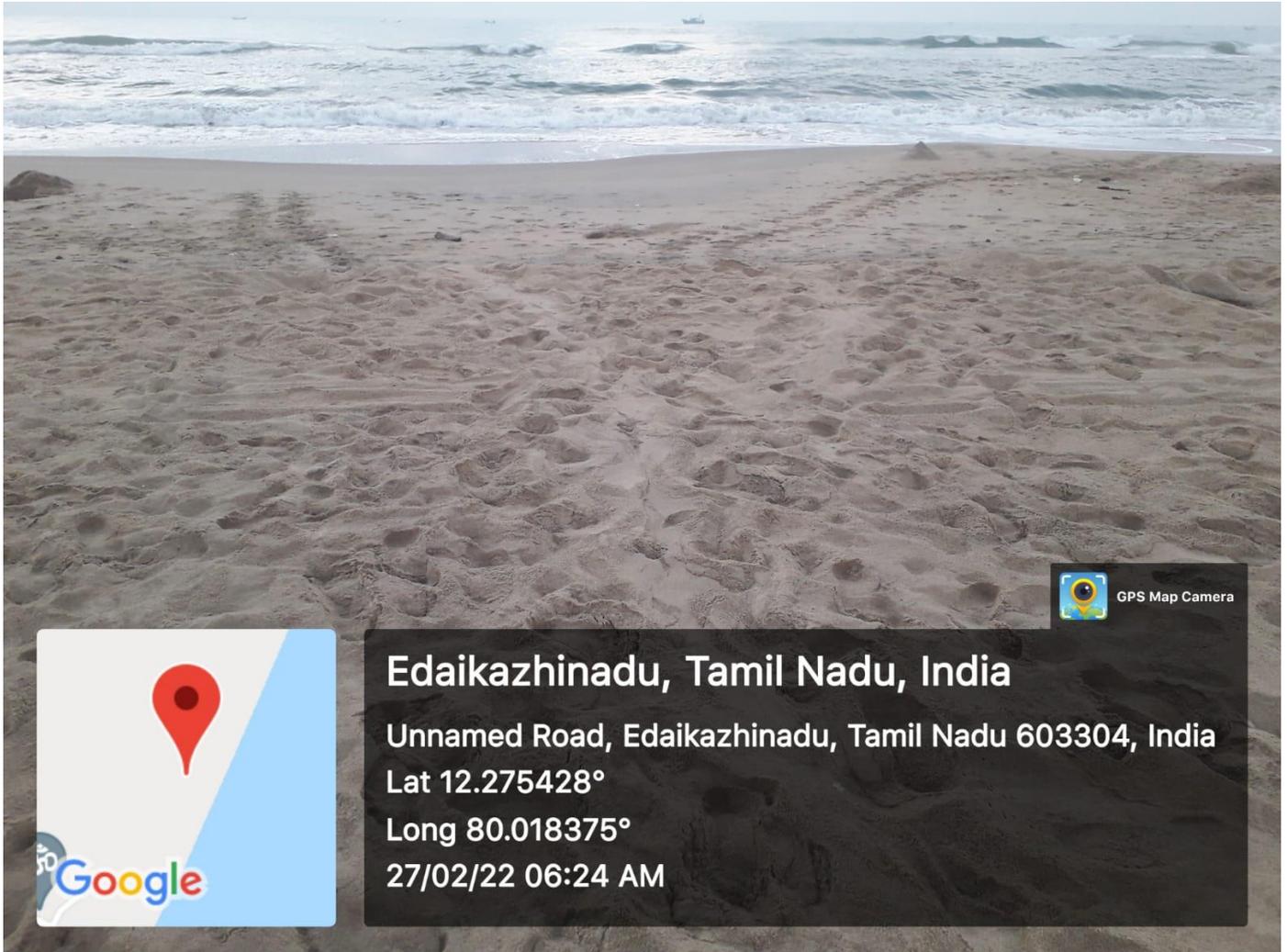
Lat 12.291428°

Long 80.026704°

27/02/22 07:27 AM



764



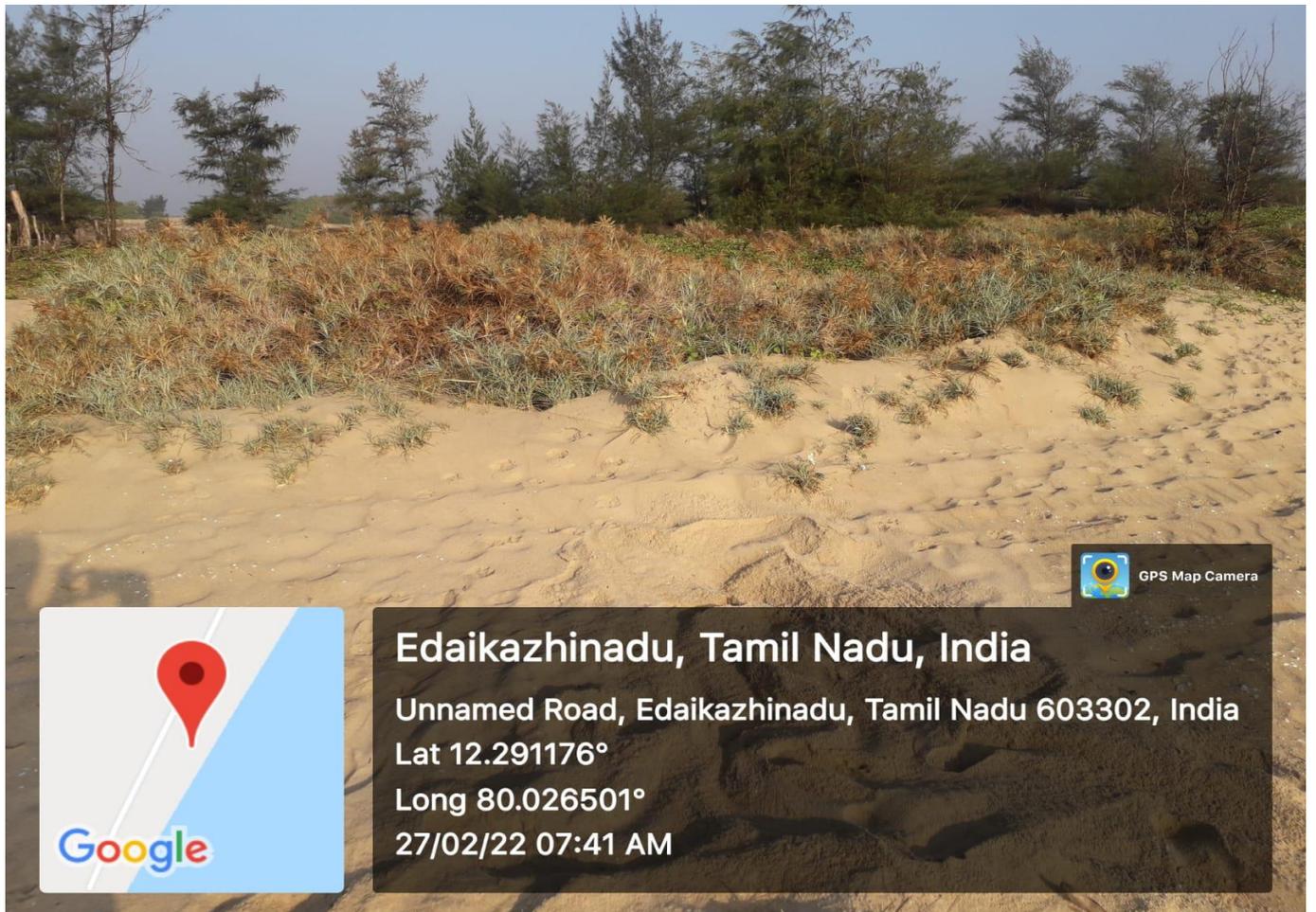
Edaikazhinadu, Tamil Nadu, India

Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.275428°

Long 80.018375°

27/02/22 06:24 AM



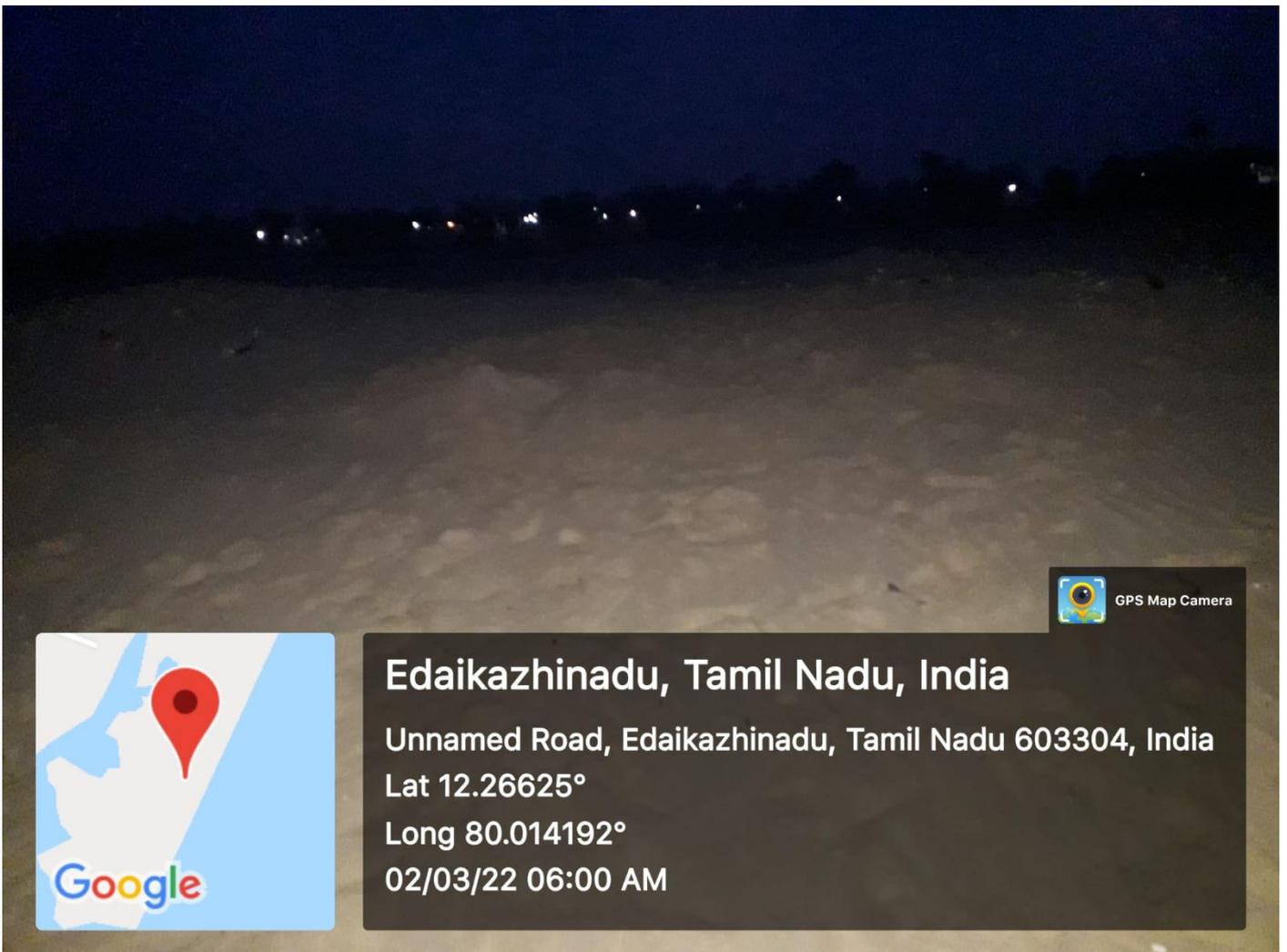
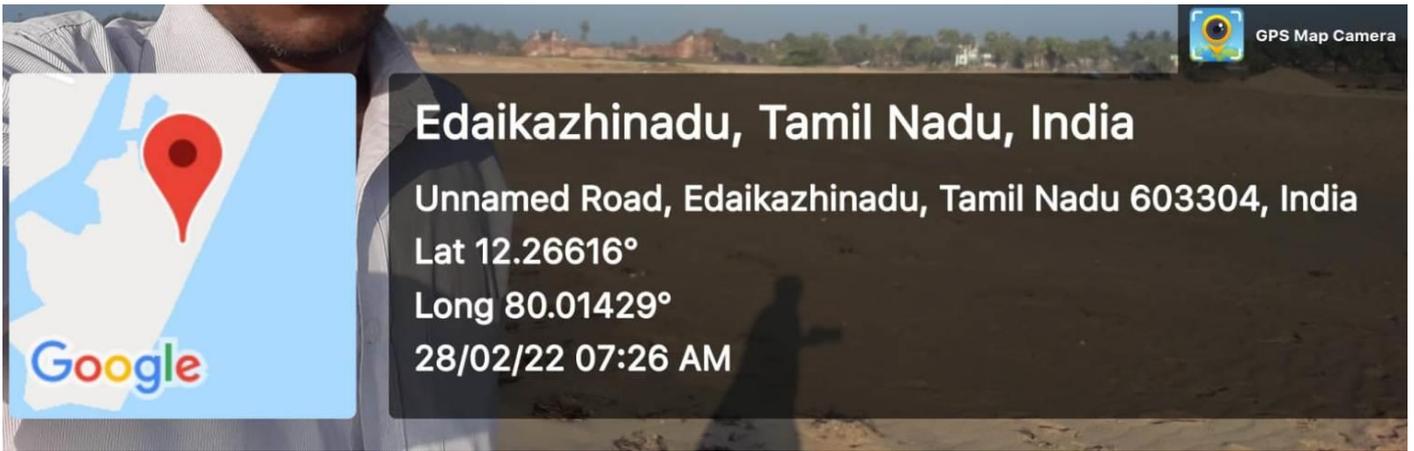
Edaikazhinadu, Tamil Nadu, India

Unnamed Road, Edaikazhinadu, Tamil Nadu 603302, India

Lat 12.291176°

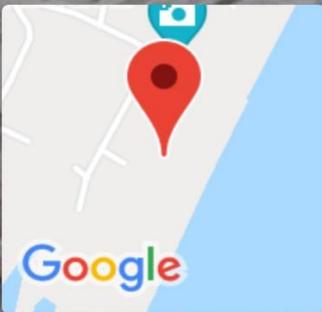
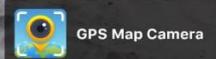
Long 80.026501°

27/02/22 07:41 AM

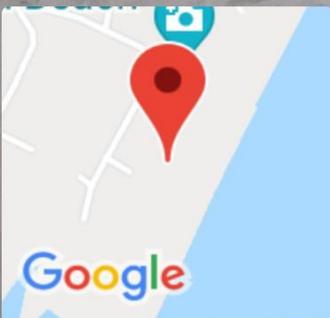
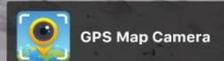
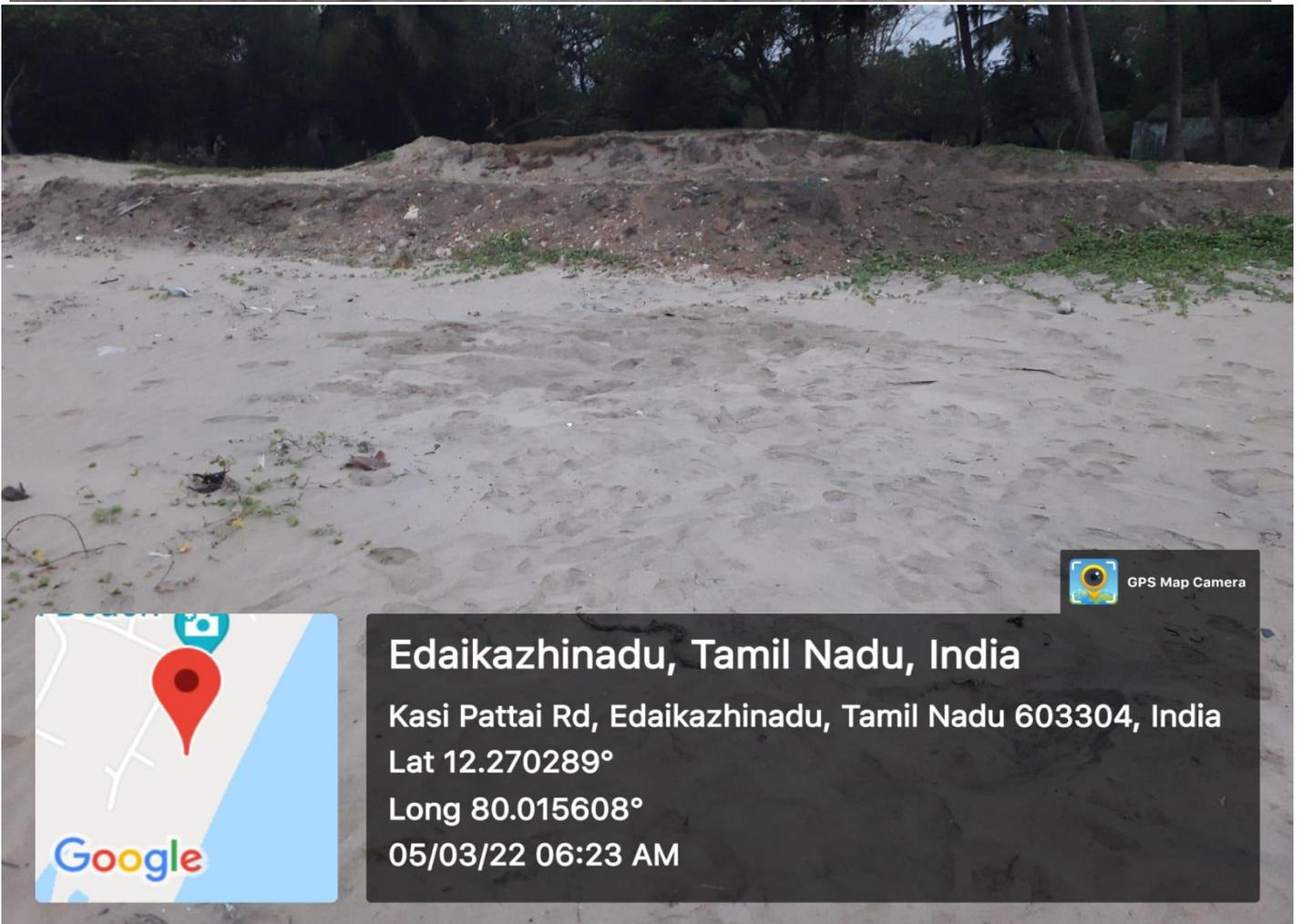




767



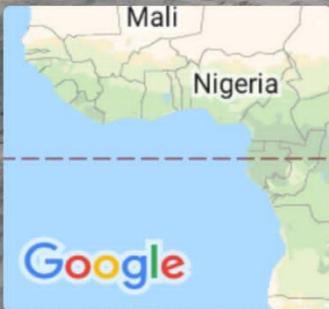
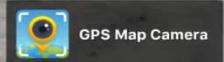
Edaikazhinadu, Tamil Nadu, India
Kasi Pattai Rd, Edaikazhinadu, Tamil Nadu 603304, India
Lat 12.270249°
Long 80.015653°
05/03/22 06:23 AM



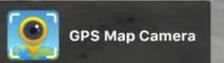
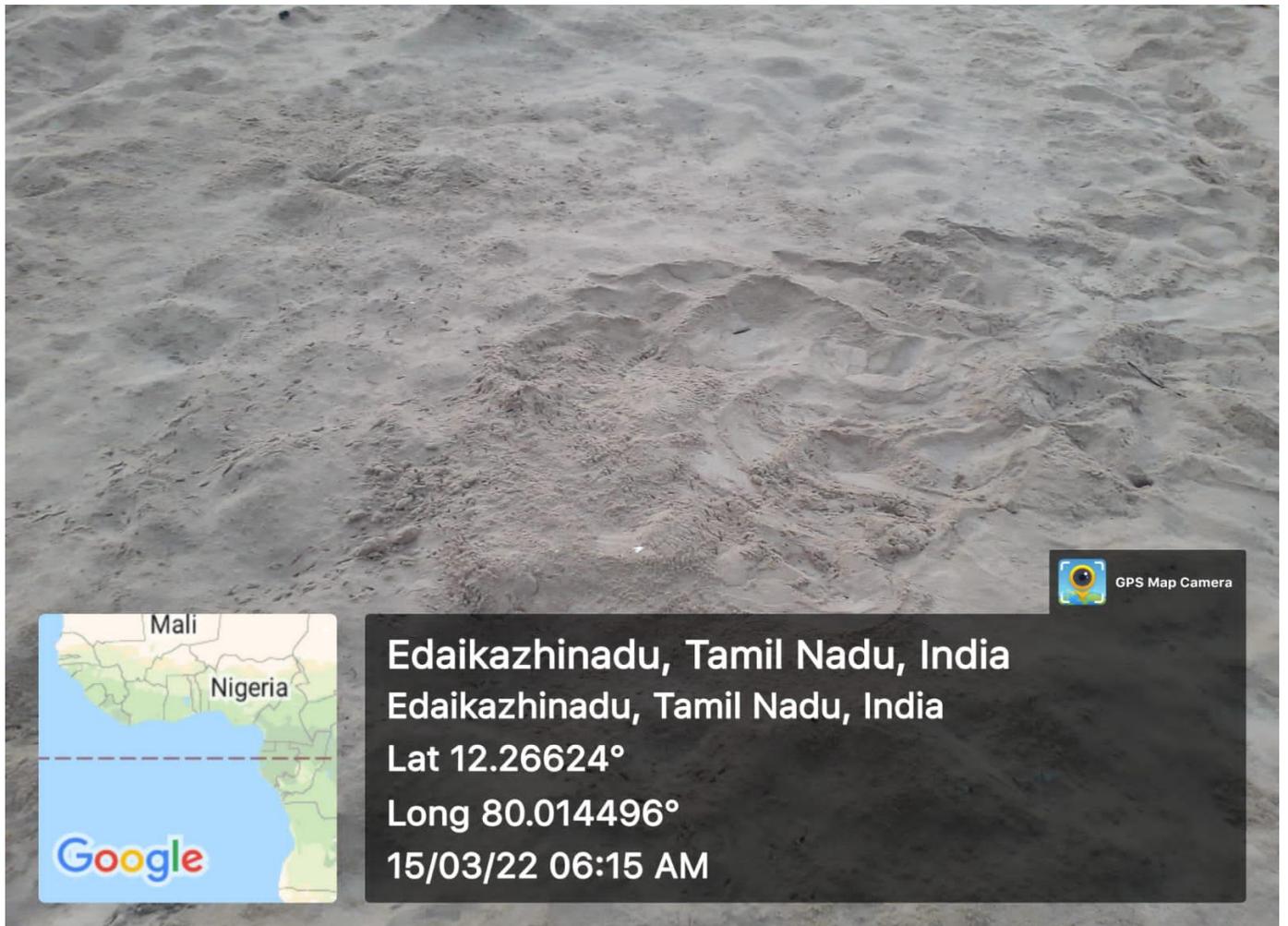
Edaikazhinadu, Tamil Nadu, India
Kasi Pattai Rd, Edaikazhinadu, Tamil Nadu 603304, India
Lat 12.270289°
Long 80.015608°
05/03/22 06:23 AM

768



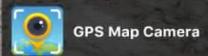


Edaikazhinadu, Tamil Nadu, India
Edaikazhinadu, Tamil Nadu, India
Lat 12.26624°
Long 80.014496°
15/03/22 06:15 AM



Edaikazhinadu, Tamil Nadu, India
Edaikazhinadu, Tamil Nadu, India
Lat 12.26624°
Long 80.014496°
15/03/22 06:15 AM

770



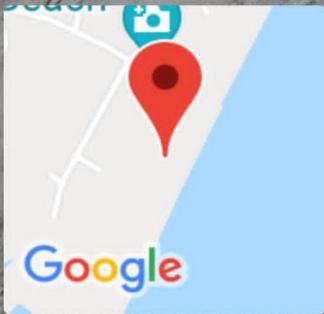
Edaikazhinadu, Tamil Nadu, India

Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.270326°

Long 80.016044°

15/03/22 06:18 AM



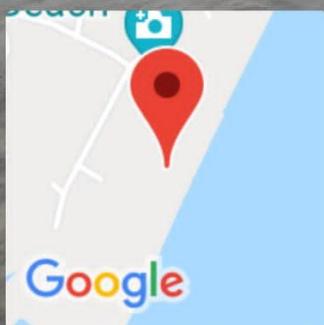
Edaikazhinadu, Tamil Nadu, India

Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India

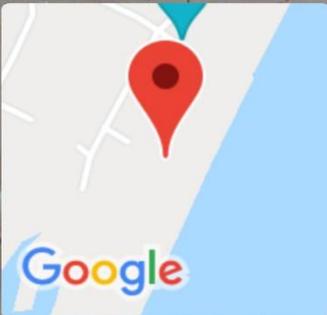
Lat 12.270324°

Long 80.016047°

15/03/22 06:18 AM







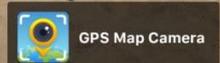
Edaikazhinadu, Tamil Nadu, India

Kasi Pattai Rd, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.269917°

Long 80.015606°

18/03/22 06:06 AM



Edaikazhinadu, Tamil Nadu, India

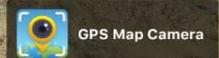
Kasi Pattai Rd, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.269842°

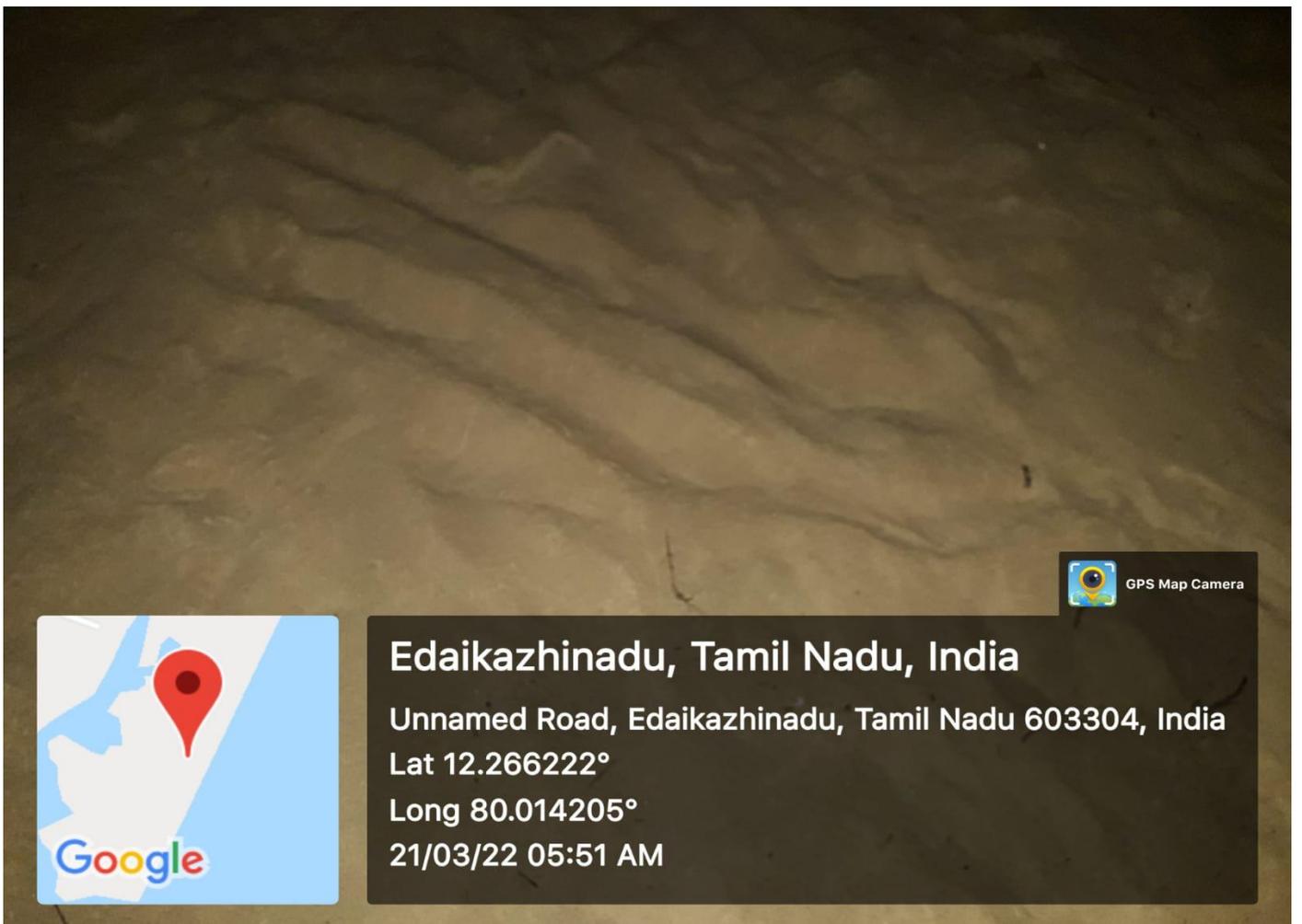
Long 80.015647°

18/03/22 07:38 AM

773



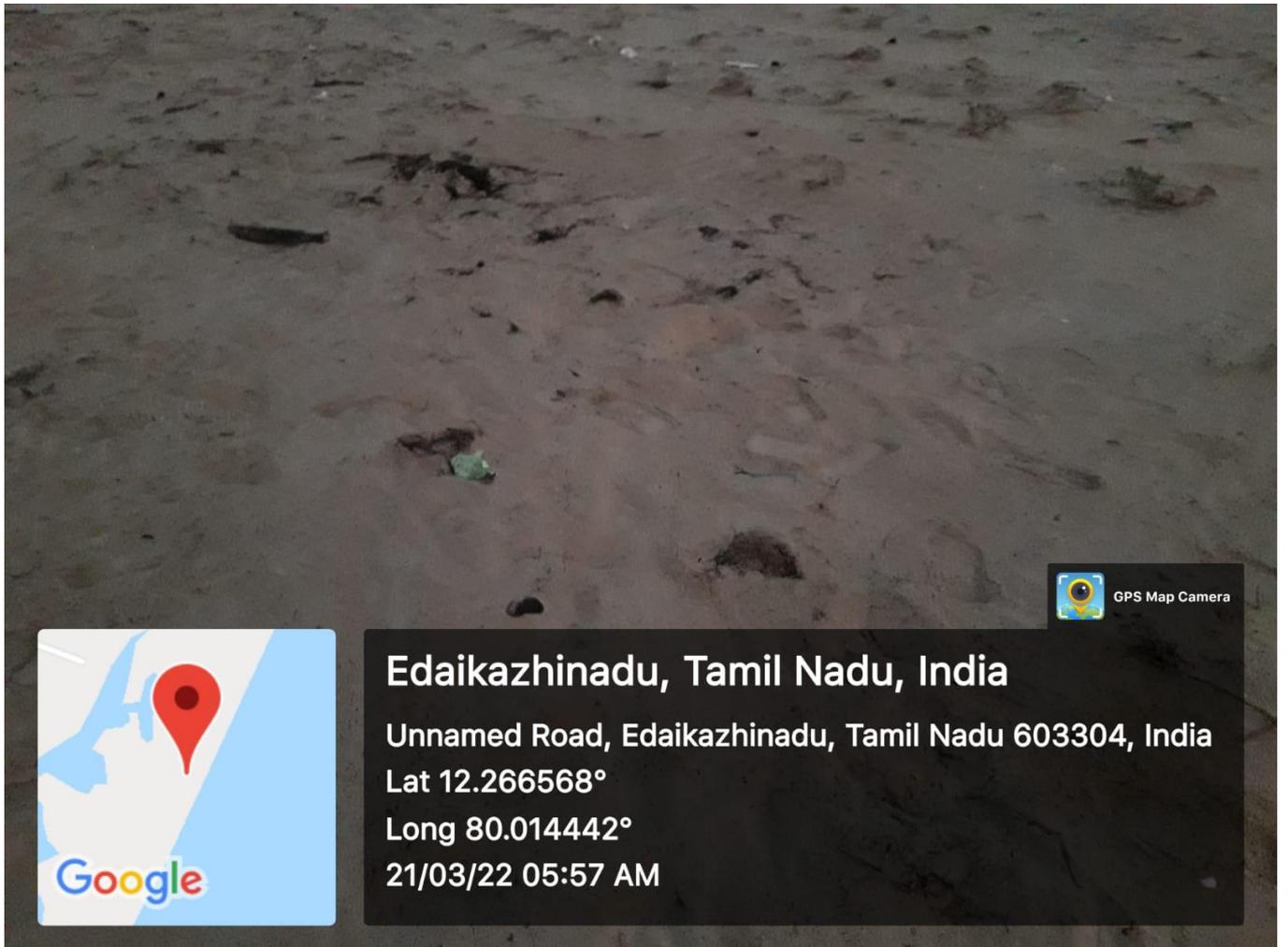
Edaikazhinadu, Tamil Nadu, India
Kasi Pattai Rd, Edaikazhinadu, Tamil Nadu 603304, India
Lat 12.269842°
Long 80.015647°
18/03/22 07:39 AM



Edaikazhinadu, Tamil Nadu, India
Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India
Lat 12.266222°
Long 80.014205°
21/03/22 05:51 AM



775





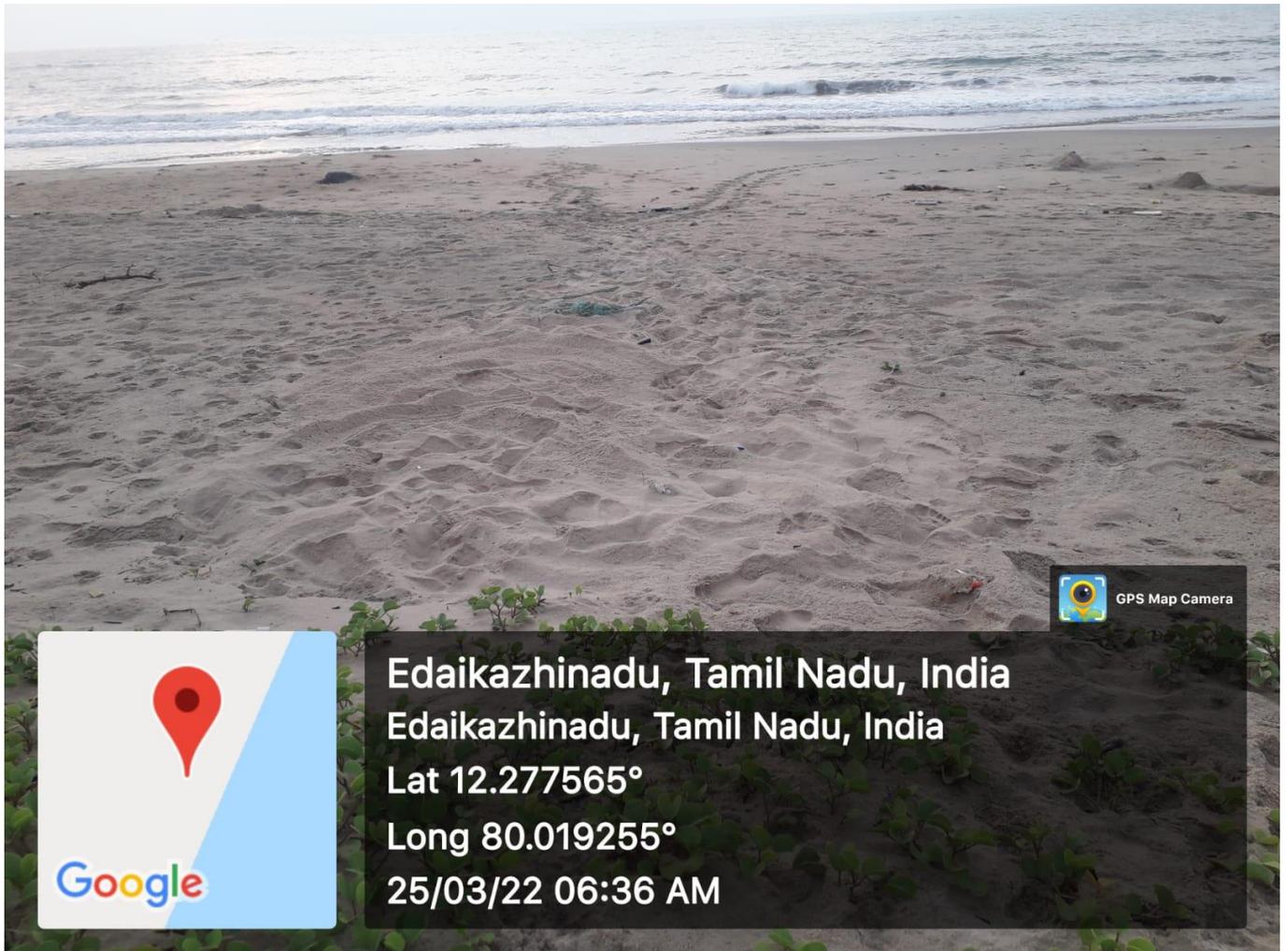
Edaikazhinadu, Tamil Nadu, India

Unnamed Road, Edaikazhinadu, Tamil Nadu 603304, India

Lat 12.280133°

Long 80.020554°

22/03/22 06:07 AM



Edaikazhinadu, Tamil Nadu, India

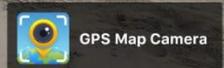
Edaikazhinadu, Tamil Nadu, India

Lat 12.277565°

Long 80.019255°

25/03/22 06:36 AM

777

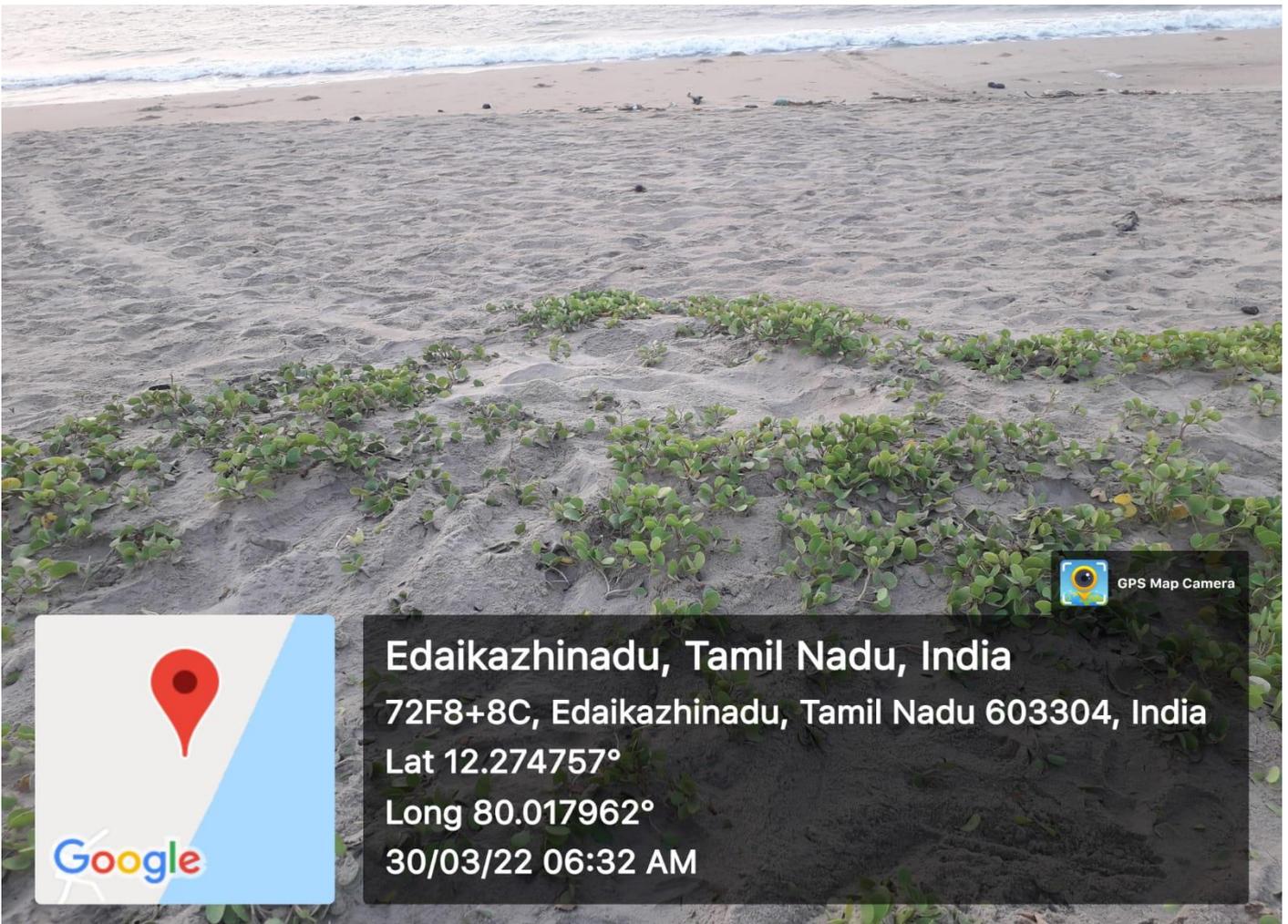
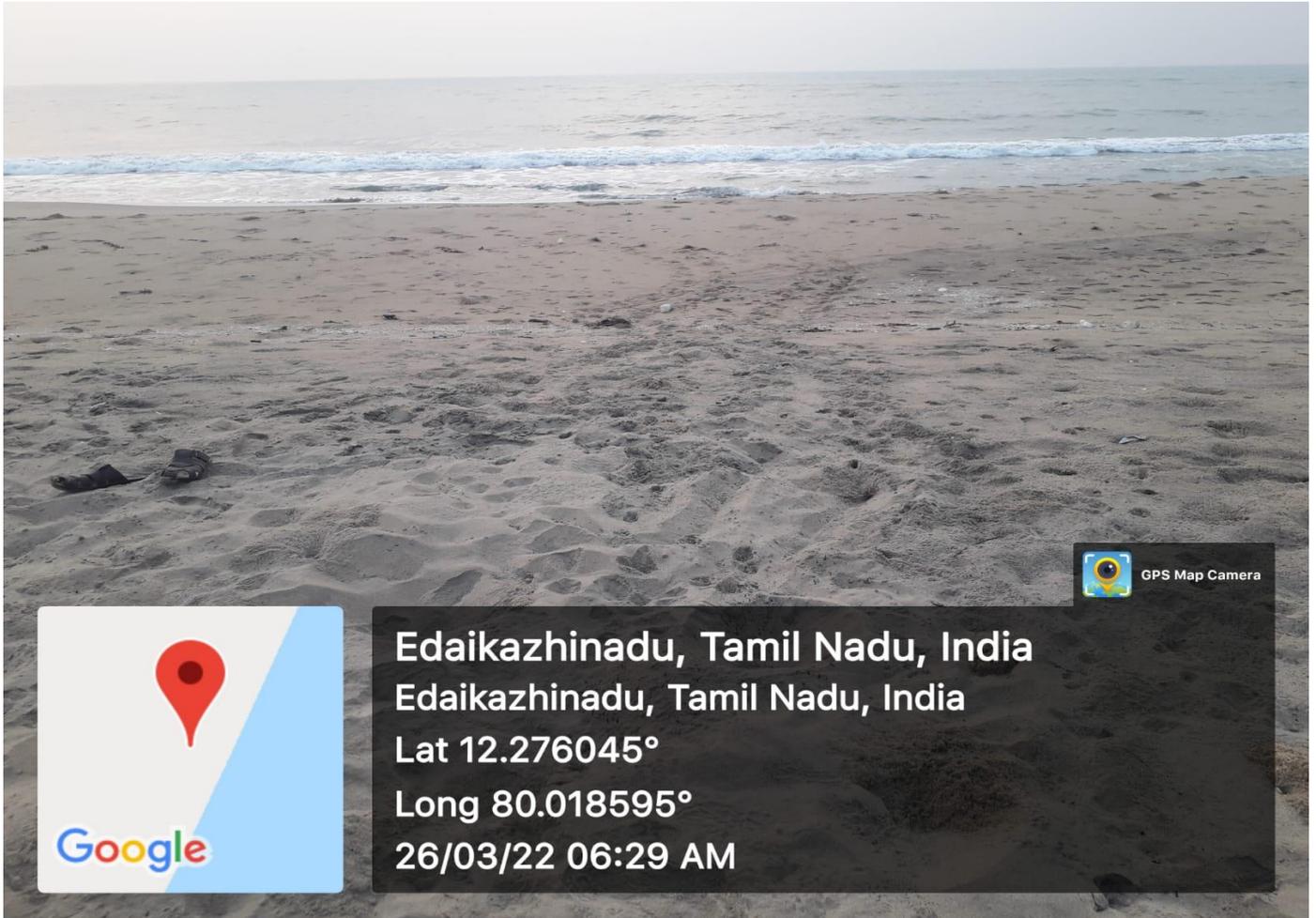


Edaikazhinadu, Tamil Nadu, India
Edaikazhinadu, Tamil Nadu, India
Lat 12.277474°
Long 80.019425°
25/03/22 06:37 AM

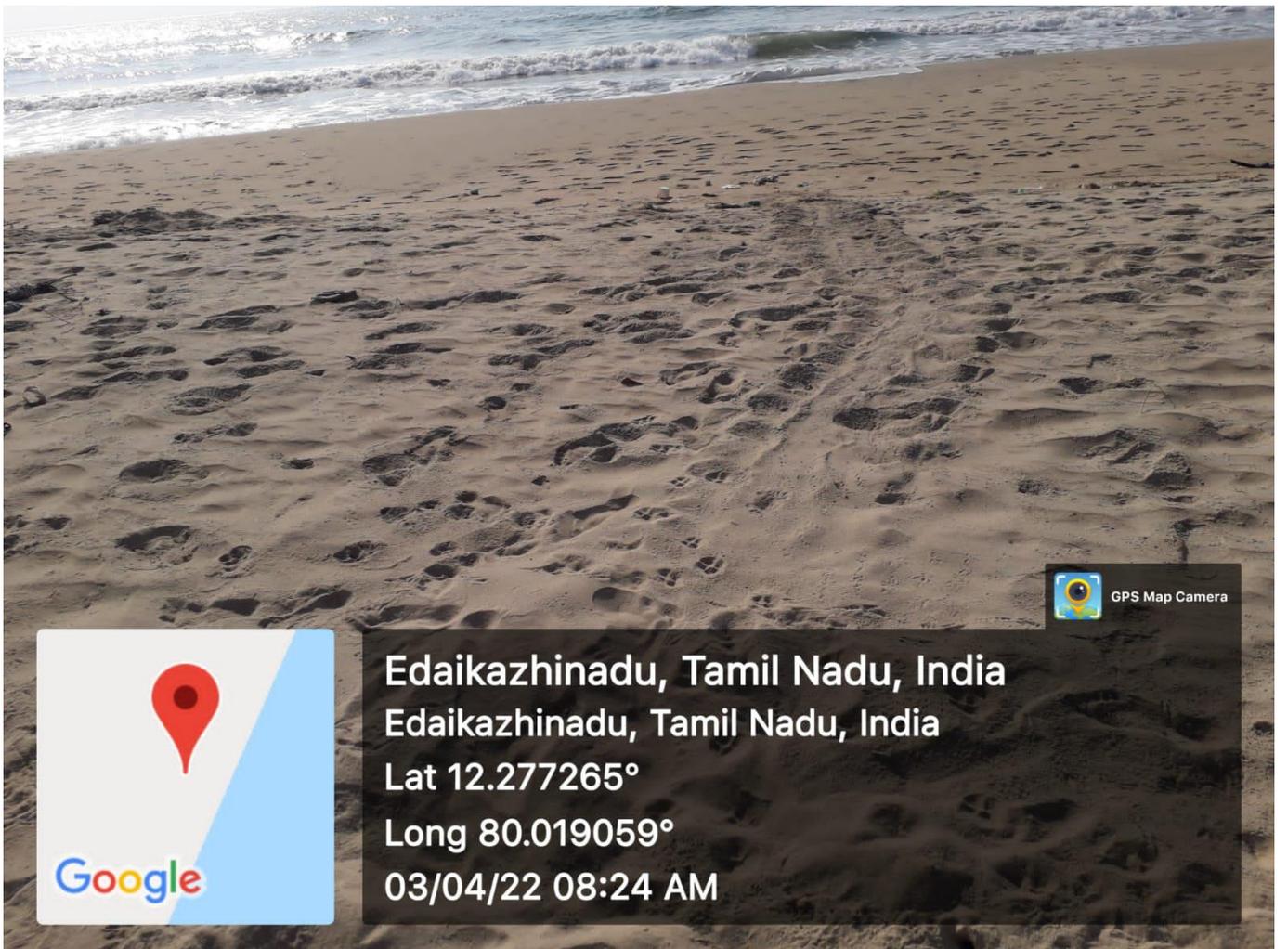
778



779



780



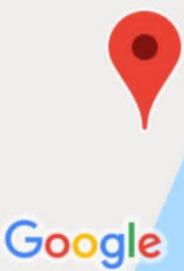
Edaikazhinadu, Tamil Nadu, India

Edaikazhinadu, Tamil Nadu, India

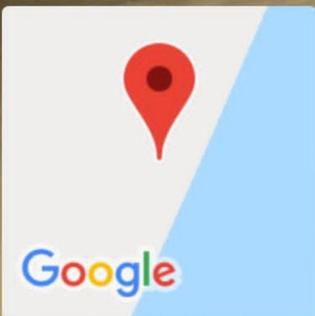
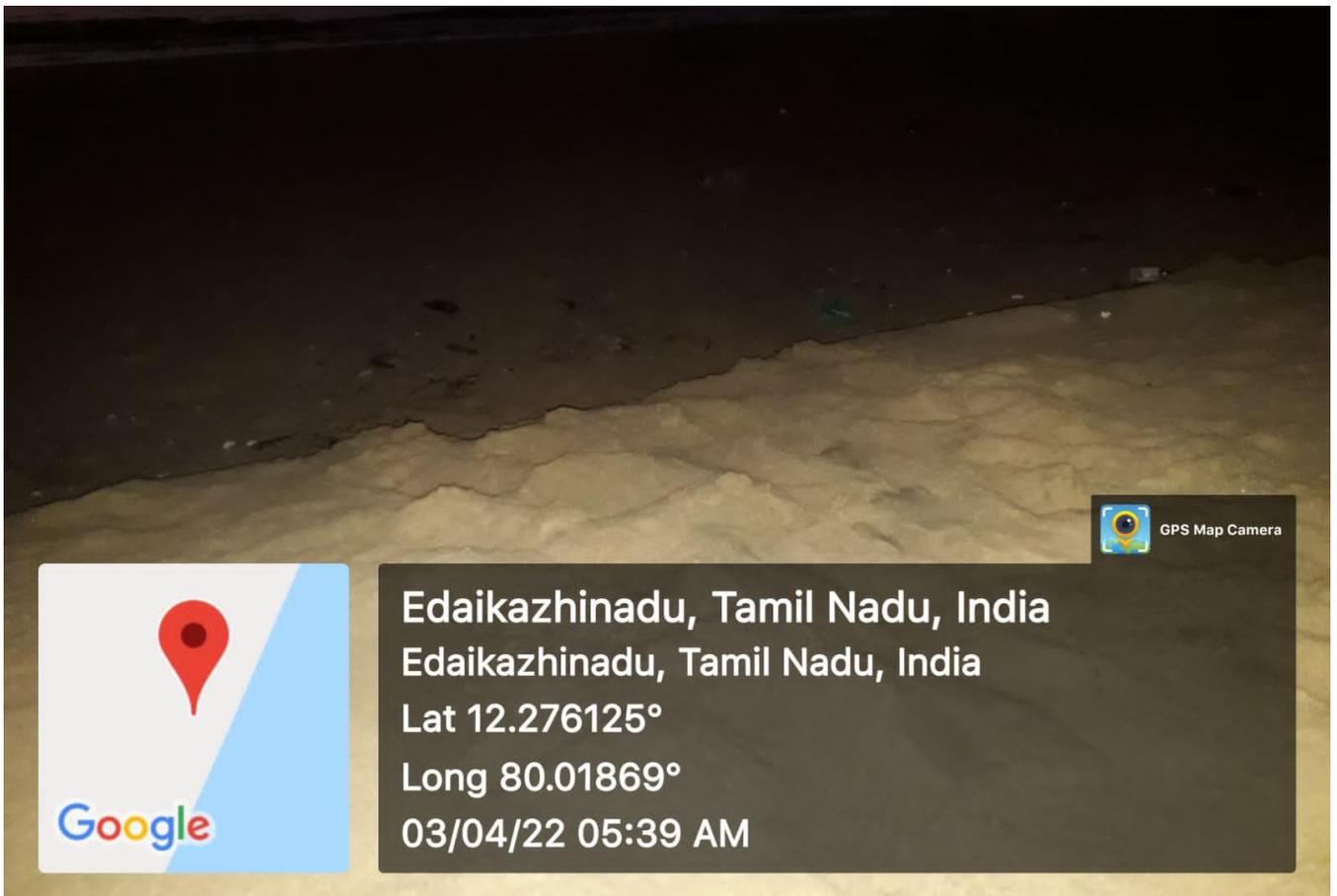
Lat 12.277265°

Long 80.019059°

03/04/22 08:24 AM



781



Edaikazhinadu, Tamil Nadu, India

Edaikazhinadu, Tamil Nadu, India

Lat 12.276125°

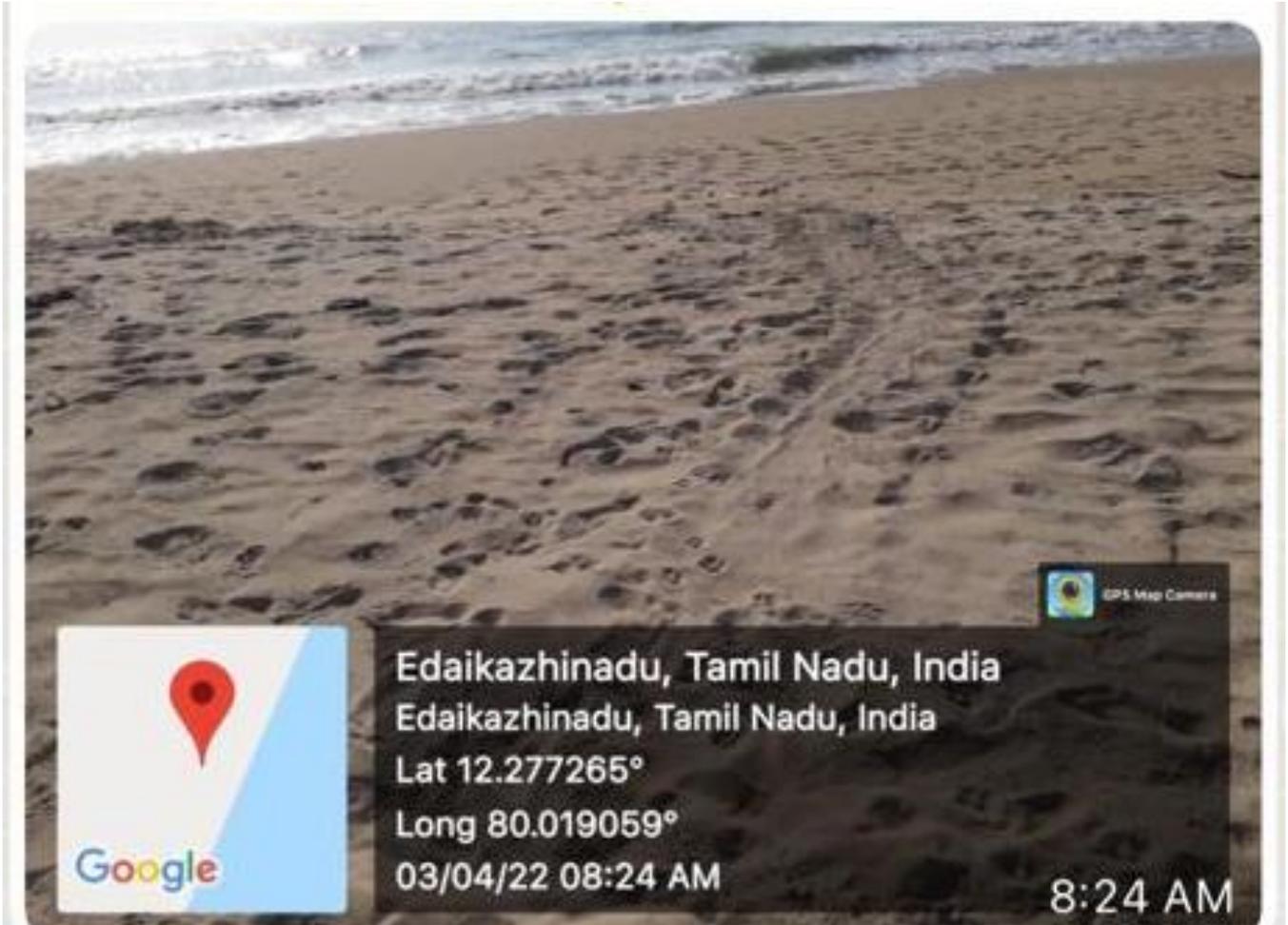
Long 80.01869°

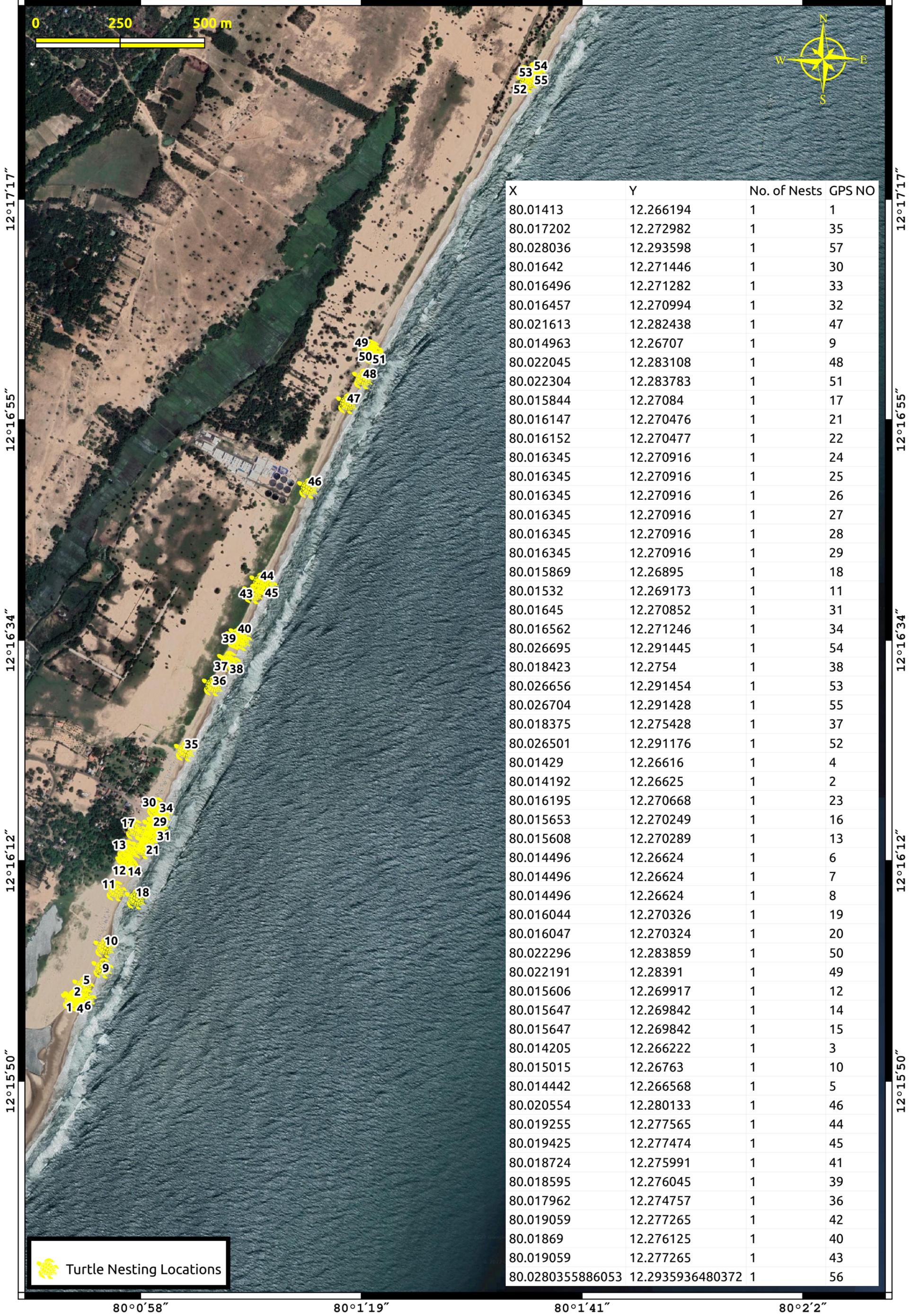
03/04/22 05:39 AM



GPS Map Camera

782





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80.016457	12.270994	1	32
80.021613	12.282438	1	47
80.014963	12.26707	1	9
80.022045	12.283108	1	48
80.022304	12.283783	1	51
80.015844	12.27084	1	17
80.016147	12.270476	1	21
80.016152	12.270477	1	22
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80.016345	12.270916	1	28
80.016345	12.270916	1	29
80.015869	12.26895	1	18
80.01532	12.269173	1	11
80.01645	12.270852	1	31
80.016562	12.271246	1	34
80.026695	12.291445	1	54
80.018423	12.2754	1	38
80.026656	12.291454	1	53
80.026704	12.291428	1	55
80.018375	12.275428	1	37
80.026501	12.291176	1	52
80.01429	12.26616	1	4
80.014192	12.26625	1	2
80.016195	12.270668	1	23
80.015653	12.270249	1	16
80.015608	12.270289	1	13
80.014496	12.26624	1	6
80.014496	12.26624	1	7
80.014496	12.26624	1	8
80.016044	12.270326	1	19
80.016047	12.270324	1	20
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80.015606	12.269917	1	12
80.015647	12.269842	1	14
80.015647	12.269842	1	15
80.014205	12.266222	1	3
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80.014442	12.266568	1	5
80.020554	12.280133	1	46
80.019255	12.277565	1	44
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80.018724	12.275991	1	41
80.018595	12.276045	1	39
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80.019059	12.277265	1	42
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80.019059	12.277265	1	43
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 Turtle Nesting Locations